

## ANNEX A - TROPICAL CYCLONE TRACK DATA

### 1. WESTERN NORTH PACIFIC CYCLONE TRACK DATA

#### TROPICAL STORM NADINE

(January)

BEST TRACK			WARNING			24 HOUR FORECAST			48 HOUR FORECAST			72 HOURS FORECAST					
POSIT	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND
106182	7.5 164.6	25	0.0 0.0	0.0	0.	10.1 161.4	30	0.0 0.0	0.0	10.4 155.9	35	0.0 0.0	0.0	8.4 150.8	40	0.0 0.0	0.0
106192	7.6 164.0	25	0.0 0.0	0.0	0.	10.4 161.0	30	0.0 0.0	0.0	10.7 158.3	35	0.0 0.0	0.0	8.9 154.5	40	0.0 0.0	0.0
106192	7.6 163.5	25	0.0 0.0	0.0	0.	10.4 161.4	30	0.0 0.0	0.0	10.7 157.3	35	0.0 0.0	0.0	9.5 153.4	40	0.0 0.0	0.0
106192	8.0 163.0	25	0.0 0.0	0.0	0.	10.4 161.0	30	0.0 0.0	0.0	10.7 157.6	35	0.0 0.0	0.0	9.7 159.0	40	0.0 0.0	0.0
106192	8.5 162.5	25	0.0 0.0	0.0	0.	10.4 161.0	30	0.0 0.0	0.0	10.7 157.1	35	0.0 0.0	0.0	10.7 149.0	45	1230	15
106192	9.0 162.0	25	0.0 0.0	0.0	0.	10.4 161.0	30	0.0 0.0	0.0	10.7 156.6	40	0.0 0.0	0.0	10.8 148.1	45	1420	15
106192	9.2 162.0	30	9.3 161.7	25	19.0 -5.	10.4 154.7	30	12.9 -5.	10.4 155.9	35	16.2 -5.	8.4 150.8	40	702	-5.		
106192	9.5 162.4	30	9.3 161.7	25	19.0 -5.	10.4 161.4	30	19.0 -5.	10.4 158.7	35	18.0 -5.	9.0 154.8	40	568	-10.		
106192	9.6 162.9	30	9.3 161.7	25	17.0 -5.	10.4 161.7	30	20.0 -5.	10.4 158.3	35	23.0 -10.	8.9 154.5	40	655	-15.		
106192	10.2 162.8	30	10.2 163.1	25	18.0 -5.	11.3 161.4	30	21.0 -5.	10.4 157.3	35	28.0 -10.	9.5 153.4	40	779	-15.		
106192	10.3 161.9	30	10.8 161.7	25	32.0 -5.	10.4 157.6	30	22.0 -5.	10.8 153.5	35	52.0 -10.	9.7 159.0	40	1042	-15.		
106192	10.4 161.5	30	10.3 161.3	30	13.0 -5.	10.4 157.1	35	24.0 -5.	10.4 153.0	40	58.0 -10.	10.7 149.0	45	1230	-15.		
106192	10.4 161.0	30	10.0 161.3	30	19.0 -5.	9.6 156.6	40	31.0 -5.	10.4 152.4	45	70.7 -10.	10.8 148.1	45	1420	-15.		
110002	11.0 161.1	35	11.1 161.5	35	24.0 0.	12.0 154.8	40	18.0 -5.	12.4 154.8	45	60.0 -10.	12.2 150.8	50	1348	0.		
110002	11.6 161.1	40	11.6 161.2	35	19.0 -5.	12.2 157.4	45	23.0 -5.	12.2 157.4	50	78.0 -5.	10.0 0.0	0.	-0.	0.		
110002	12.7 160.6	40	12.3 160.7	40	25.0 0.	14.3 157.4	45	22.0 -5.	13.2 153.7	50	41.0 -10.	0.0 0.0	0.	-0.	0.		
110002	13.0 160.1	45	13.0 159.4	45	13.0 0.	15.2 156.4	50	34.0 -5.	13.6 153.2	50	0.0 -10.	0.0 0.0	0.	-0.	0.		
111002	14.4 160.1	45	14.2 160.1	45	12.0 0.	17.2 160.2	40	23.0 -5.	20.5 162.7	35	58.0 -15.	0.0 0.0	0.	-0.	0.		
111002	15.4 160.6	45	15.1 161.0	45	24.0 0.	18.3 164.0	45	13.0 -20.	0.0 0.0	0.	0.0 -20.	0.0 0.0	0.	-0.	0.		
111002	15.9 161.4	50	16.0 161.4	45	6.0 -5.	19.1 164.4	45	23.0 -15.	0.0 0.0	0.	0.0 -20.	0.0 0.0	0.	-0.	0.		
111002	16.0 162.7	55	16.0 162.7	55	6.0 0.	18.4 161.1	45	22.0 -15.	0.0 0.0	0.	0.0 -20.	0.0 0.0	0.	-0.	0.		
112002	17.1 164.3	55	17.4 164.2	55	19.0 0.	19.6 170.5	45	17.0 -5.	0.0 0.0	0.	0.0 -20.	0.0 0.0	0.	-0.	0.		
112002	17.8 166.3	55	17.7 166.1	55	13.0 0.	0.0 0.0	0.	0.0 -5.	0.0 0.0	0.	0.0 -20.	0.0 0.0	0.	-0.	0.		
112002	18.8 158.6	60	18.6 168.0	55	59.0 -5.	0.0 0.0	0.	0.0 -20.	0.0 0.0	0.	0.0 -20.	0.0 0.0	0.	-0.	0.		
112002	20.2 170.8	60	20.3 170.7	60	8.0 0.	0.0 0.0	0.	0.0 -20.	0.0 0.0	0.	0.0 -20.	0.0 0.0	0.	-0.	0.		
113002	21.0 173.2	50	21.6 173.0	50	11.0 0.	0.0 0.0	0.	0.0 -5.	0.0 0.0	0.	0.0 -20.	0.0 0.0	0.	-0.	0.		

ALL FORECASTS			WNRG	74-HR	48-HR	72-HR
Avg Forecast Posit Error	23.	185.	568.	940.		
Avg Right Angle Error	15.	109.	381.	718.		
Avg Intensity Magnitude Errorm	2.	7.	9.	11.		
Avg Intensity Bias	-2.	-7.	-9.	-11.		
Number of Forecasts	20	16	12	8		

#### TYPHOON OLIVE

(April)

BEST TRACK			WARNING			24 HOUR FORECAST			48 HOUR FORECAST			72 HOURS FORECAST						
POSIT	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	
415002	3.5 149.0	15	0.0 0.0	0.	0.	0.0 11.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	
415002	3.8 149.6	15	0.0 0.0	0.	0.	0.0 12.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	
415002	4.3 146.2	15	0.0 0.0	0.	0.	0.0 12.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	
415002	4.7 144.8	15	0.0 0.0	0.	0.	0.0 12.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	
415002	5.0 143.5	15	0.0 0.0	0.	0.	0.0 12.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	
415002	5.3 142.8	20	0.0 0.0	0.	0.	0.0 12.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	
410122	5.6 142.3	20	0.0 0.0	0.	0.	0.0 12.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	
410122	5.9 141.5	20	0.0 0.0	0.	0.	0.0 12.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	
410122	6.2 140.8	25	0.0 0.0	0.	0.	0.0 12.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	
410122	6.8 139.3	25	0.0 0.0	0.	0.	0.0 12.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	
411122	7.4 137.7	25	0.0 0.0	0.	0.	0.0 12.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	
411122	7.9 136.5	25	0.0 0.0	0.	0.	0.0 12.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	0.0 0.0	0.	
410002	8.4 135.2	30	6.5 135.0	30	13.0 0.	10.5 130.4	40	40.0 0.	0.0 0.0	0.0 0.0	0.	12.0 125.0	55	138.	5.	14.0 121.5	45	105.
410002	8.7 133.9	30	8.2 132.9	30	21.0 0.	11.4 129.4	45	30.0 0.	0.0 0.0	0.0 0.0	0.	12.0 125.1	55	138.	5.	14.0 121.3	50	151.
410002	9.0 132.6	30	9.2 132.4	30	21.0 0.	11.7 124.6	45	70.0 0.	0.0 0.0	0.0 0.0	0.	12.0 124.6	55	137.	10.	14.2 120.5	50	158.
410002	9.4 131.2	35	9.2 131.5	35	21.0 0.	10.6 126.5	50	32.0 0.	0.0 0.0	0.0 0.0	0.	12.7 122.6	55	99.	10.	14.3 118.9	55	112.
410002	9.6 129.9	40	9.7 129.5	35	24.0 -5.	11.4 124.5	40	45.0 -20.	12.5 120.7	40	72.0 -5.	14.0 116.8	50	26.	-10.			
410002	10.0 128.6	45	10.1 128.4	45	13.0 0.	11.8 123.2	45	45.0 12.5	12.0 119.3	40	42.0 -5.	14.5 115.6	50	12.	-15.			
410002	10.4 127.4	50	10.4 127.1	50	6.0 0.	12.0 122.4	45	45.0 30.	13.0 118.5	40	39.0 -10.	15.0 114.9	50	12.	-20.			
410002	10.8 126.0	55	10.9 126.2	50	13.0 -5.	12.3 122.0	40	40.0 7.0	12.3 118.4	45	76.0 -10.	15.1 115.6	50	78.	-30.			
420002	11.3 124.6	60	11.3 124.8	60	12.0 0.	12.2 121.4	40	11.0 0.	12.2 121.4	45	45.0 7.0	15.0 117.0	45	15.	16.0 114.1	50	29.	
420002	11.9 123.4	50	11.5 123.7	50	27.0 0.	12.8 119.9	45	35.0 0.	14.2 115.0	50	35.0 -15.	15.6 111.2	55	124.	-10.			
420002	12.4 122.1	45	12.3 122.4	45	8.0 0.	13.4 117.1	45	10.0 0.	14.0 113.8	50	65.0 -20.	16.1 110.1	55	140.	-30.			
420002	12.6 120.9	45	12.9 121.1	45	8.0 0.	14.4 116.4	50	65.0 -5.	15.7 112.8	50	90.0 -25.	17.1 109.3	60	225.	-25.			
421002	13.2 119.7	45	13.2 119.6	45	6.0 0.	14.8 114.7	55	11.0 0.	16.2 110.8	60	162.0 -25							

422122	14.8	114.9	70	14.8	114.7	70	12.	0.	16.5	111.8	75.	80.	-10.	1P+2	109.4	80.	383.	-5.	20.1	107.4	80.	886.	15.	
422182	15.3	114.3	80	15.5	114.2	80	13.	0.	18.0	111.7	85.	81.	-5.	2n+6	110.2	80.	398.	-20.	0.0	0.0	0.	-0.	0.	
423002	15.9	113.6	85	16.0	113.5	85	8.	0.	18.4	111.3	85.	129.	110.	21.	110.4	85.	464.	-10.	23.4	112.1	40.	847.	15.	
423062	16.4	113.2	85	16.7	113.0	85	21.	0.	19.1	111.2	85.	186.	111.	7	111.1	85.	940.	-10.	0.0	0.0	0.	-0.	0.	
423122	17.0	113.1	85	17.0	112.9	85	17.	0.	19.2	111.6	85.	261.	111.	0.	21.	111.1	75.	505.	10.	24.1	118.3	65.	726.	20.
423182	17.7	113.2	85	17.4	113.2	85	18.	0.	19.7	113.5	80.	215.	116.	0.	22.	116.1	75.	516.	15.	25.	120.2	65.	721.	25.
424002	18.4	113.0	85	18.5	113.0	85	8.	0.	21.	116.1	80.	15.	5.	24.	120.3	70.	417.	15.	0.0	0.0	0.	-0.	0.	
424062	19.1	114.5	85	19.1	114.5	85	0.	0.	21.	119.0	80.	161.	10.	23.	125.0	65.	252.	15.	0.0	0.0	0.	-0.	0.	
424122	19.7	116.0	85	19.7	115.7	85	17.	0.	21.	120.8	75.	135.	10.	23.	127.2	65.	243.	20.	0.0	0.0	0.	-0.	0.	
424182	20.2	117.3	80	20.6	117.3	80	0.	0.	22.	123.c	65.	129.	5.	24.	130.5	55.	169.	15.	0.0	0.0	0.	-0.	0.	
425002	20.7	116.7	75	20.9	116.7	75	12.	0.	23.	125.7	60.	113.	5.	0.	0.0	0.	0.	0.	0.0	0.0	0.	-0.	0.	
425062	21.2	120.8	70	21.4	120.7	70	35.	0.	23.	127.0	50.	156.	0.	0.	0.0	0.	0.	0.	0.0	0.0	0.	-0.	0.	
425122	21.5	123.2	65	21.5	123.7	65	28.	0.	23.	134.0	55.	143.	0.	0.	0.0	0.	0.	0.	0.0	0.0	0.	-0.	0.	
425182	21.7	125.4	60	21.8	125.4	60	28.	0.	23.	137.0	45.	202.	5.	0.	0.0	0.	0.	0.	0.0	0.0	0.	-0.	0.	
426002	22.0	127.4	55	22.0	127.5	55	6.	0.	0.	0.0	0.	0.	-1.	0.	0.	0.0	0.	0.	0.	0.0	0.	0.	-0.	0.
426062	22.5	129.5	50	22.2	129.3	50	21.	0.	0.	0.0	0.	0.	-1.	0.	0.	0.0	0.	0.	0.	0.0	0.	0.	-0.	0.
426122	22.4	131.5	45	22.6	131.3	45	13.	0.	0.	0.0	0.	0.	-1.	0.	0.	0.0	0.	0.	0.	0.0	0.	0.	-0.	0.
426182	23.3	133.3	40	23.3	133.0	40	27.	0.	0.	0.0	0.	0.	-1.	0.	0.	0.0	0.	0.	0.	0.0	0.	0.	-0.	0.

ALL FORECASTS				TYPHOONS WHILE OVER 35 KTS					
WNG	24-HR	48-HR	72-HR	WNG	24-HR	48-HR	72-HR		
Avg Forecast Posit Error	14.	100.	224.	328.	Avg	14.	100.	224.	328.
Avg Right Angle Error	10.	62.	129.	215.	Avg	4.	67.	129.	215.
Avg Intensity Magnitude Errror	1.	5.	14.	17.	Avg	1.	5.	14.	17.
Avg Intensity Bias	0.	-3.	-6.	-9.	Avg	0.	-3.	-6.	-9.
Number of Forecasts	36	32	28	20	33	32	28	20	
	17	15	12						

### TROPICAL STORM POLLY

(June)

BEST TRACK			WARNING			24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST											
POSIT	WIND	DIR	POSIT	WIND	DIR	ERRORS	POSIT	WIND	DIR	ERRORS	POSIT	WIND	DIR	ERRORS									
013122	20.3	138.3	15	0.0	0.0	0.	-0.	0.0	0.0	-0.	0.0	0.0	0.0	0.									
013182	21.2	137.3	15	0.0	0.0	0.	-0.	0.0	0.0	-0.	0.0	0.0	0.0	0.									
014002	22.2	136.3	20	0.0	0.0	0.	-0.	0.0	0.0	-0.	0.0	0.0	0.0	0.									
014062	23.0	135.5	20	0.0	0.0	0.	-0.	0.0	0.0	-0.	0.0	0.0	0.0	0.									
014122	23.0	134.5	20	0.0	0.0	0.	-0.	0.0	0.0	-0.	0.0	0.0	0.0	0.									
014182	23.3	133.8	20	0.0	0.0	0.	-0.	0.0	0.0	-0.	0.0	0.0	0.0	0.									
015002	24.1	133.1	15	0.0	0.0	0.	-0.	0.0	0.0	-0.	0.0	0.0	0.0	0.									
015062	23.7	132.7	15	0.0	0.0	0.	-0.	0.0	0.0	-0.	0.0	0.0	0.0	0.									
015122	23.3	132.3	15	0.0	0.0	0.	-0.	0.0	0.0	-0.	0.0	0.0	0.0	0.									
015182	22.8	132.0	20	0.0	0.0	0.	-0.	0.0	0.0	-0.	0.0	0.0	0.0	0.									
016002	22.4	132.4	25	0.0	0.0	0.	-0.	0.0	0.0	-0.	0.0	0.0	0.0	0.									
016062	23.0	132.4	25	0.0	0.0	0.	-0.	0.0	0.0	-0.	0.0	0.0	0.0	0.									
016122	23.5	131.0	25	0.0	0.0	0.	-0.	0.0	0.0	-0.	0.0	0.0	0.0	0.									
016182	23.9	129.7	30	23.7	129.9	30	26.	0.	25.5	124.7	40.	124.	15.	28.3	123.5	45.	161.	5.	30.9	126.7	35.	37.	15.
017002	24.4	129.9	30	24.3	128.3	30	33.	0.	28.0	124.0	40.	167.	10.	32.2	127.0	40.	285.	0.	35.7	133.0	35.	378.	10.
017062	24.0	128.2	30	25.0	128.2	30	24.	0.	27.0	126.0	30.	901.	-5.	29.	124.7	30.	111.	-15.	0.	0.	0.	-0.	0.
017122	23.0	127.4	25	24.9	127.6	30.	12.	5.	27.1	125.1	30.	64.	-5.	29.2	124.0	30.	125.	-20.	0.	0.	0.	-0.	0.
017182	25.4	127.0	25	25.4	126.8	30.	11.	5.	28.0	124.7	30.	91.	-10.	30.6	125.1	25.	76.	-25.	0.	0.	0.	-0.	0.
018002	26.1	126.3	30	26.5	125.8	30.	36.	0.	29.0	124.4	30.	150.	-10.	31.0	125.2	25.	112.	-20.	0.	0.	0.	-0.	0.
018062	26.9	126.1	35	26.0	126.0	35.	8.	0.	28.0	124.9	45.	72.	0.	32.3	126.4	35.	127.	-5.	0.	0.	0.	-0.	0.
018122	26.5	126.1	35	26.0	126.0	35	8.	0.	29.0	125.7	45.	36.	-5.	32.9	128.2	40.	114.	10.	0.	0.	0.	-0.	0.
018182	26.9	126.1	40	27.0	126.1	40	6.	0.	30.5	126.6	50.	12.	0.	0.	0.0	0.	0.	0.	0.	0.	0.	-0.	0.
019002	27.5	126.0	40	27.0	126.0	40	6.	0.	29.0	126.3	50.	114.	5.	0.	0.0	0.	0.	0.	0.	0.	0.	-0.	0.
019062	28.0	126.1	45	27.9	126.1	45	18.	0.	31.7	127.4	50.	90.	10.	0.	0.0	0.	0.	0.	0.	0.	0.	-0.	0.
019122	29.1	126.4	50	29.1	126.5	50	13.	0.	33.0	128.1	45.	88.	15.	0.	0.0	0.	0.	0.	0.	0.	0.	-0.	0.
019182	30.3	126.5	50	30.1	126.6	50	13.	0.	0.	0.0	0.	0.	-1.	0.	0.	0.0	0.	0.	0.	0.	0.	-0.	0.
020002	31.5	127.3	45	31.7	127.2	45.	13.	0.	0.	0.0	0.	0.	-1.	0.	0.	0.0	0.	0.	0.	0.	0.	-0.	0.
020062	32.5	128.9	40	32.5	128.4	45.	25.	5.	0.	0.0	0.	0.	-1.	0.	0.	0.0	0.	0.	0.	0.	0.	-0.	0.
020122	33.4	130.4	30	33.2	130.6	30	13.	0.	0.	0.0	0.	0.	-1.	0.	0.	0.0	0.	0.	0.	0.	0.	-0.	0.

ALL FORECASTS				TYPHOONS WHILE OVER 35 KTS					
WNG	24-HR	48-HR	72-HR	WNG	24-HR	48-HR	72-HR		
Avg Forecast Posit Errror	16.	93.	139.	208.	Avg	16.	93.	139.	208.
Avg Right Angle Error	10.	50.	93.	47.	Avg	4.	67.	129.	215.
Avg Intensity Magnitude Errror	1.	8.	13.	13.	Avg	1.	8.	13.	13.
Avg Intensity Bias	1.	2.	-9.	-13.	Avg	1.	2.	-9.	-13.
Number of Forecasts	16	12	8	2	8	7	1		

TROPICAL STORM ROSE

(June)

BEST TRACK				WARNING				24 HOUR FORECAST				48 HOUR FORECAST				72 HOUR FORECAST			
POSIT	WIND	POSIT	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND
021002	10.0 120.4	20	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
021004	10.7 129.7	20	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
021122	17.3 129.0	20	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
021124	16.0 128.2	20	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022004	18.7 127.8	20	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022004	19.0 127.0	20	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022122	19.0 126.4	30	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022124	18.0 125.6	30	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
023004	18.0 124.8	35	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
023004	19.1 124.0	40	18.0 124.1	35.	19.0 -2.	18.0 124.0	35.	18.0 124.1	35.	18.0 124.0	35.	18.0 124.1	35.	18.0 124.0	35.	18.0 124.1	35.	18.0 124.0	35.
023122	19.0 123.4	40	18.0 123.6	40.	19.0 6.	18.0 123.5	40.	19.0 123.6	40.	19.0 123.5	40.	19.0 123.6	40.	19.0 123.5	40.	19.0 123.6	40.	19.0 123.5	40.
023124	20.0 122.9	40	18.7 123.0	40.	19.0 10.	18.0 123.0	40.	19.0 122.9	40.	19.0 123.0	40.	19.0 122.9	40.	19.0 123.0	40.	19.0 122.9	40.	19.0 123.0	40.
024004	21.4 122.5	35	21.3 122.6	35.	21.	21.3 122.5	35.	21.3 122.6	35.	21.3 122.5	35.	21.3 122.6	35.	21.3 122.5	35.	21.3 122.6	35.	21.3 122.5	35.
024004	22.3 122.0	35	22.2 122.1	35.	22.	22.3 122.0	35.	22.2 122.1	35.	22.2 122.0	35.	22.2 122.1	35.	22.2 122.0	35.	22.2 122.1	35.	22.2 122.0	35.
024122	23.2 121.5	30	22.9 121.7	35.	23.	22.9 121.5	30.	22.9 121.7	35.	22.9 121.5	30.	22.9 121.7	35.	22.9 121.5	30.	22.9 121.7	35.	22.9 121.5	30.
024124	24.3 121.1	25	24.1 121.4	25.	24.	24.3 121.1	25.	24.1 121.4	25.	24.3 121.1	25.	24.1 121.4	25.	24.3 121.1	25.	24.1 121.4	25.	24.3 121.1	25.

ALL FORECASTS

WIND 24-HR 48-HR 72-HR

Avg Forecast Posit Errror 47. 35. 0. 0.  
 Avg High Angle Errror 21. 142. 0. 0.  
 Avg Intensity Magnitude Errror 2. 35. 0. 0.  
 Avg Intensity Bias 1. 35. 0. 0.  
 Number of Forecasts 7 3 0 0

TROPICAL STORM SHIRLEY

(June)

BEST TRACK				WARNING				24 HOUR FORECAST				48 HOUR FORECAST				72 HOUR FORECAST			
POSIT	WIND	POSIT	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND
020002	11.1 129.5	15	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
020002	11.2 128.7	15	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
020122	11.3 127.5	15	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
020124	11.0 126.5	15	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
021004	11.3 125.6	20	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
021004	11.3 124.1	20	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
021122	11.3 122.8	20	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
021124	11.1 121.0	20	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022002	10.7 119.2	25	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022002	10.4 117.8	25	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022122	10.3 117.0	25	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022124	10.3 117.3	25	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022402	10.5 117.4	25	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022402	10.6 116.6	25	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022412	11.4 115.2	25	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022412	12.1 113.6	30	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022412	12.0 112.2	35	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022412	13.0 110.7	35	13.4 111.3	35.	35.	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022412	13.5 109.3	35	13.4 109.5	35.	13.	10. 0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.
022412	14.0 108.1	30	13.7 108.1	30.	24.	0. 0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.	0.0 0.0	0.0 0.0	-0.	0.

ALL FORECASTS

WIND 24-HR 48-HR 72-HR

Avg Forecast Posit Errror 24. 0. 0. 0.  
 Avg High Angle Errror 15. 0. 0. 0.  
 Avg Intensity Magnitude Errror 3. 0. 0. 0.  
 Avg Intensity Bias 3. 0. 0. 0.  
 Number of Forecasts 3 0 0 0

## TYphoon TRIX

(July)

BEST TRACK			WARNING			24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST						
POSIT	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	
711002	18.8 153.8	20	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.
711062	18.9 153.2	20	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.
711122	19.0 152.6	20	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.
711182	19.3 152.1	25	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.
712002	19.8 151.3	25	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.
712062	20.5 150.2	25	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.
712122	21.4 149.5	25	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.
712182	22.3 148.6	25	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.
713002	23.1 147.6	30	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.
713062	23.5 146.5	30	23.7 146.7	25	16.	-5.	26.0 142.7	35	180.	0.	29.1 139.2	40	329.	-10.	30.4 135.4	45	488.	-20.
713122	23.8 145.4	30	24.5 145.5	25	42.	-5.	27.2 141.7	35	191.	0.	28.8 137.4	40	320.	-15.	30.0 133.3	45	556.	-20.
713182	23.0 144.3	30	24.1 144.5	25	21.	-5.	25.5 140.2	35	180.	26.0 136.9	40	228.	-20.	27.0 131.7	45	483.	-20.	
714002	23.6 143.3	35	24.3 143.3	25	42.	-10.	25.5 139.0	35	97.	25.5 136.7	40	266.	-25.	26.8 130.1	45	564.	-20.	
714062	23.8 142.4	35	24.0 142.3	30	13.	-5.	25.3 138.1	30	119.	26.0 133.5	45	310.	-20.	26.4 129.1	50	629.	-20.	
714122	24.0 141.6	40	23.9 141.7	30	8.	-10.	24.6 137.7	40	75.	25.2 133.2	45	321.	-20.	25.4 128.3	50	690.	-20.	
714182	24.1 140.7	45	23.9 140.8	35	13.	-10.	24.0 136.8	40	77.	24.1 132.1	45	381.	-20.	23.9 127.5	50	769.	-15.	
715002	24.0 139.7	50	24.2 140.0	35	20.	-15.	24.0 136.5	45	116.	24.7 132.0	50	389.	-15.	24.7 128.1	55	799.	-10.	
715062	23.6 138.9	50	23.8 138.9	30	12.	10.	24.3 135.0	50	183.	24.6 130.7	70	515.	0.	24.7 126.3	75	961.	15.	
715122	23.4 138.3	55	23.5 137.9	30	23.	5.	23.8 134.0	50	234.	23.7 129.7	70	601.	0.	24.4 125.1	75	1057.	20.	
715182	23.2 137.9	60	23.3 137.6	30	18.	0.	22.0 134.6	50	239.	23.0 130.2	70	621.	5.	24.3 126.1	75	1047.	20.	
7152002	22.9 137.6	65	22.8 137.1	30	28.	-5.	22.2 134.7	65	243.	22.2 131.2	70	627.	5.	22.2 127.8	75	1018.	20.	
715262	22.5 137.7	65	22.6 137.9	55	13.	0.	22.6 137.9	75	105.	22.9 137.4	80	372.	20.	22.3 134.6	80	691.	25.	
715322	22.1 138.0	65	22.1 138.2	55	11.	0.	22.1 138.2	75	137.	22.9 136.9	80	457.	25.	22.3 134.6	80	667.	25.	
715382	21.9 138.6	65	21.0 138.3	55	18.	0.	21.1 138.3	75	191.	22.7 138.0	80	430.	25.	22.8 136.0	80	569.	30.	
7154002	22.1 139.1	65	22.0 138.8	55	18.	0.	22.7 139.8	75	166.	24.7 141.2	80	272.	25.	27.0 141.4	80	162.	35.	
715462	22.4 139.8	70	22.5 139.9	70	6.	0.	24.6 141.0	90	163.	30.	27.7 140.9	95.	300.	40.	30.7 139.8	95.	157.	55.
715522	22.7 140.6	70	23.2 140.3	70	34.	0.	26.3 141.3	90	205.	35.	29.4 140.4	95.	301.	40.	32.1 139.2	95.	164.	55.
715582	23.0 141.5	65	22.9 141.4	70	8.	5.	25.5 143.0	75	108.	28.5 142.8	80	101.	30.	31.4 141.6	80.	180.	45.	
7158002	23.5 142.7	65	23.7 142.3	70	25.	5.	27.0 143.7	75	138.	20.	30.0 143.2	80.	69.	35.	32.5 143.0	80.	337.	45.
715862	24.4 144.0	60	24.4 144.2	65	11.	5.	27.2 147.5	60	69.	5.	31.2 147.2	55.	280.	15.	34.0 147.6	50.	663.	15.
715922	25.2 144.9	55	25.6 145.1	60	26.	5.	30.2 146.8	55	184.	20.	33.6 146.6	50.	392.	-10.	35.6 146.5	20.	765.	-15.
715982	25.6 145.4	55	26.0 146.0	55	40.	0.	29.3 148.0	35.	185.	*15.	32.9 147.3	30.	479.	-5.	0.	0.	-0.	0.
716002	26.1 146.0	55	25.5 145.9	55.	36.	0.	27.5 147.5	50.	222.	-5.	30.4 148.0	35.	560.	0.	33.8 148.7	25.	1046.	-10.
716062	26.6 146.4	55	26.7 146.7	55.	17.	0.	30.0 148.2	40.	320.	0.	34.1 149.1	35.	735.	0.	36.7 151.3	25.	1312.	-15.
716122	27.3 145.6	55	27.7 146.5	55.	53.	0.	32.2 146.6	40.	349.	0.	35.8 147.8	35.	826.	0.	0.0	0.	0.	0.
716182	26.2 144.7	50	28.2 144.5	55.	11.	5.	32.3 142.2	45.	237.	10.	35.5 143.5	35.	737.	0.	0.0	0.	0.	0.
720002	28.9 143.6	45	29.3 143.6	50	24.	5.	33.0 141.5	40.	324.	5.	37.1 143.7	35.	890.	0.	0.0	0.	0.	0.
720062	29.2 142.3	40	29.4 142.3	40	12.	0.	31.8 137.6	35.	167.	0.	33.0 132.2	30.	374.	-10.	0.	0.	0.	0.
720122	29.6 140.5	40	30.2 140.6	40.	36.	0.	32.4 135.0	35.	217.	0.	0.	0.	0.	0.	0.	0.	0.	
720182	29.7 138.7	35	29.7 138.4	35.	5.	0.	31.2 132.0	30.	158.	-5.	0.	0.	0.	0.	0.	0.	0.	
721002	29.8 137.2	35	29.7 137.3	35.	8.	0.	29.7 131.4	30.	137.	-5.	29.0 126.8	30.	277.	0.	0.0	0.	0.	0.
721062	29.6 135.6	35	29.6 135.8	35.	16.	0.	29.5 130.2	30.	179.	*10.	0.	0.	0.	0.	0.	0.	0.	
721122	29.4 133.5	35	29.8 133.8	35.	50.	0.	29.3 128.2	35.	189.	*10.	0.	0.	0.	0.	0.	0.	0.	
721182	28.6 131.4	35	28.5 131.0	30.	22.	-5.	28.0 129.7	20.	122.	*25.	0.	0.	0.	0.	0.	0.	0.	
722002	28.6 129.1	35	28.5 128.9	30.	12.	-5.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
722062	28.7 126.9	40	28.8 126.9	30.	6.	-10.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
722122	28.5 124.7	45	28.7 124.4	30.	20.	-15.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
722182	28.7 123.0	45	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.
723002	29.3 121.5	30	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.	0.0 0.0	0.	-0.	0.

ALL FORECASTS				TYPHOONS WHILE OVER 35 KTS				
WIND	24-HR	48-HR	72-HR	WIND	24-HR	48-HR	72-HR	
Avg Forecast Posit Error	21.	174.	425.	657.	20.	174.	431.	657.
Avg Night Angle Error	17.	122.	298.	531.	16.	122.	308.	531.
Avg Intensity Magnitude Errror	4.	10.	15.	25.	4.	10.	15.	25.
Avg Intensity Bias	-2.	-1.	3.	9.	0.	-1.	3.	9.
Number of Forecasts	38	35	30	24	35	35	29	24

5 2 4

## TYPHOON VIRGINIA

(July-August)

HGT1 TRACK	WARNING			24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST			
	CHRHRS			ENHRS			CHRHRS			ENHRS			
	POSIT	WIND	POSIT	WIND	UST WIND	POSIT	WIND	UST	WIND	POSIT	WIND	UST WIND	
722002	14.1 152.0	25	0.0	0.0	0.	0.0	0.0	0.	0.	0.0	0.0	0.	
722002	14.1 151.7	25	0.0	0.0	0.	0.0	0.0	0.	0.	0.0	0.0	0.	
722122	14.0 151.4	30	0.0	0.0	0.	0.0	0.0	0.	0.	0.0	0.0	0.	
722122	14.1 151.3	30	0.0	0.0	0.	0.0	0.0	0.	0.	0.0	0.0	0.	
723002	15.5 151.1	35	0.0	0.0	0.	0.0	0.0	0.	0.	0.0	0.0	0.	
723002	15.4 151.0	35	16.1 150.4	40	0.	13.0 150.4	40	0.	11.0 150.4	40	0.	20.0 149.5	40
723122	15.1 151.0	40	16.5 150.7	40	0.	24.0 150.7	40	0.	18.5 149.0	35	0.	12.0 148.5	35
723122	15.3 151.0	40	16.6 150.4	40	0.	24.0 150.4	40	0.	18.7 149.3	35	0.	12.0 148.7	35
724002	16.0 151.0	45	16.0 151.0	50	0.	5.0 150.4	50	0.	8.0 149.4	50	0.	14.0 149.3	50
724002	16.2 151.0	45	17.1 151.0	55	0.	10.0 150.5	55	0.	9.0 149.5	55	0.	12.0 149.5	55
724122	17.0 151.0	50	17.5 151.0	55	0.	14.0 150.5	55	0.	13.0 149.5	55	0.	21.0 149.5	55
724122	18.4 150.8	55	18.0 150.8	55	0.	19.0 149.8	55	0.	14.0 149.0	55	0.	20.0 149.0	55
725002	18.9 150.5	60	19.0 150.5	60	0.	20.0 149.0	60	0.	15.0 148.0	60	0.	21.0 148.0	60
725002	19.0 150.1	65	19.4 150.0	65	0.	13.0 149.0	65	0.	21.0 149.0	65	0.	22.0 149.0	65
725122	20.1 149.7	65	20.3 149.3	65	0.	22.0 149.1	65	0.	15.0 148.5	65	0.	22.0 148.5	65
725122	20.5 149.4	65	20.7 149.2	65	0.	16.0 149.2	65	0.	22.0 149.2	65	0.	20.0 149.2	65
726002	20.9 148.9	60	21.2 148.0	60	0.	23.0 147.7	60	0.	17.0 147.7	60	0.	23.0 147.7	60
726002	21.4 148.3	60	21.4 148.5	65	0.	11.0 147.5	65	0.	23.0 147.4	65	0.	24.0 147.4	65
726122	21.7 147.8	60	22.0 147.9	65	0.	19.0 147.1	65	0.	18.0 147.1	65	0.	24.0 147.0	65
726122	21.7 147.3	60	21.9 147.2	65	0.	13.0 147.2	65	0.	20.0 147.0	65	0.	21.0 147.1	65
727002	21.7 147.0	60	22.3 146.6	65	0.	42.0 146.6	65	0.	21.0 146.6	65	0.	22.0 146.5	65
727002	21.5 147.1	60	22.1 147.2	65	0.	36.0 146.7	65	0.	23.7 146.5	65	0.	24.5 146.5	65
727122	21.4 147.2	65	22.0 146.4	65	0.	40.0 146.4	65	0.	23.3 146.3	65	0.	23.0 146.3	65
727122	21.3 147.4	65	22.0 146.9	65	0.	50.0 146.9	65	0.	23.5 146.9	65	0.	25.0 146.9	65
728002	21.3 147.7	65	21.6 147.6	65	0.	21.0 147.6	65	0.	15.0 147.6	65	0.	25.0 147.7	65
728002	21.5 147.8	65	21.5 147.5	65	0.	17.0 147.5	65	0.	22.0 147.5	65	0.	26.0 147.5	65
728122	21.6 147.3	65	22.1 147.1	65	0.	32.0 147.0	65	0.	16.0 147.0	65	0.	26.0 147.0	65
728122	22.4 147.1	70	22.2 147.0	65	0.	6.0 147.0	65	0.	23.0 147.0	65	0.	27.0 147.0	65
729002	22.7 147.1	70	22.3 146.6	65	0.	42.0 146.6	65	0.	23.0 146.6	65	0.	28.0 146.7	65
729002	23.3 146.9	70	22.9 146.9	65	0.	24.0 146.9	65	0.	19.0 146.9	65	0.	26.0 146.9	65
729122	23.9 146.3	65	24.0 146.4	70	0.	12.0 146.4	70	0.	26.0 146.1	70	0.	25.0 146.1	70
729122	24.6 145.6	65	24.7 145.8	70	0.	12.0 145.8	70	0.	26.0 145.8	70	0.	27.0 145.8	70
730002	25.4 145.0	65	25.4 145.0	70	0.	10.0 145.0	70	0.	27.0 145.0	70	0.	24.0 145.0	70
730002	26.3 144.4	60	26.0 144.4	70	0.	18.0 144.4	70	0.	20.0 144.4	70	0.	26.0 144.5	70
730122	27.4 143.8	60	26.9 143.9	70	0.	30.0 143.9	70	0.	29.0 143.9	70	0.	30.0 143.9	70
731022	28.5 143.2	60	28.0 143.2	65	0.	30.0 143.2	65	0.	30.0 143.2	65	0.	31.0 143.2	65
731022	29.5 142.5	65	29.1 142.7	65	0.	26.0 142.7	65	0.	29.0 142.7	65	0.	29.0 142.7	65
731022	30.7 142.0	65	30.8 141.8	65	0.	12.0 141.8	65	0.	30.0 141.8	65	0.	31.0 141.8	65
731122	31.7 141.4	55	31.9 141.4	65	0.	24.0 141.4	65	0.	30.0 141.4	65	0.	31.0 141.4	65
731122	32.7 141.4	55	32.9 141.4	65	0.	12.0 141.4	65	0.	30.0 141.4	65	0.	32.0 141.4	65
801002	33.5 141.2	55	33.8 140.9	65	0.	19.0 140.9	65	0.	37.0 141.4	65	0.	20.0 140.9	65
801002	34.9 141.4	55	34.7 141.6	65	0.	19.0 141.6	65	0.	38.0 141.3	65	0.	35.0 141.3	65
801122	35.6 142.5	55	35.8 142.7	65	0.	26.0 142.7	65	0.	35.0 142.7	65	0.	36.0 142.7	65
801122	37.4 143.4	45	37.4 143.3	55	0.	19.0 143.3	55	0.	39.0 143.8	55	0.	37.0 143.8	55
802002	39.4 146.9	40	39.1 146.4	65	0.	23.0 146.4	65	0.	0.0 146.4	65	0.	37.0 146.4	65
802002	39.9 146.9	40	40.1 147.1	55	0.	15.0 147.1	55	0.	0.0 147.1	55	0.	38.0 147.1	55
802122	40.7 149.0	40	40.5 148.9	55	0.	13.0 148.9	55	0.	0.0 148.9	55	0.	40.0 148.9	55
802122	41.8 151.0	35	41.2 151.4	50	0.	40.0 151.4	50	0.	0.0 151.4	50	0.	41.0 151.4	50

ALL FORECASTS			TYPHOONS WHILE OVER JS KTS			
WIND	24-HR	48-HR	WIND	24-HR	48-HR	
AVG FORECAST POSIT	112.0	231.0	399.0	112.0	231.0	399.0
AVG HIGH ANGLE ERROR	6.0	8.0	11.0	13.0	6.0	13.0
AVG INTENSITY MAGNITUDE ERROR	6.0	8.0	10.0	10.0	6.0	10.0
AVG INTENSITY BIAS	6.0	7.0	8.0	10.0	6.0	10.0
NUMBER OF FORECASTS	43	39	35	31	43	39

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## TYPHON WENDY

(July-August)

BEST TRACK			WARNING			24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST											
POSIT	WIND	POSIT	WIND	UST WIND	ERRORS	POSIT	WIND	UST WIND	ERRORS	POSIT	WIND	UST WIND	ERRORS	POSIT	WIND	UST WIND	ERRORS						
122002	18.4 139.2	20	0.0 0.0	0.0 0.0	0.0 0.0	122062	19.0 138.7	20	0.0 0.0	0.0 0.0	0.0 0.0	122122	19.8 138.2	25	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0					
122182	20.5 137.7	25	0.0 0.0	0.0 0.0	0.0 0.0	123002	20.9 137.2	30	0.0 0.0	0.0 0.0	0.0 0.0	123122	21.4 136.2	35	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0					
123182	21.5 135.4	35	0.0 0.0	0.0 0.0	0.0 0.0	124002	21.2 134.4	40	21.4 133.4	30	51. -10.	124062	20.8 134.1	40	20.8 134.1	35	0. -5.	124122	20.7 134.0	40	20.6 133.5	30	29. -0.
124182	20.8 133.9	45	20.5 134.4	45	33. -0.	125002	20.9 133.7	50	20.9 133.4	50	6. 0.	125062	20.9 133.4	55	20.9 133.3	55	6. 0.	125122	21.1 133.4	60	20.9 133.1	50	21. -0.
125182	21.3 133.4	65	21.0 133.7	55	25. -0.	126002	21.5 133.4	70	21.6 134.0	55	34. -5.	126062	21.6 133.3	70	21.7 133.1	70	10. 0.	126122	21.7 133.3	70	21.7 133.0	70	10. 0.
126182	21.8 133.4	75	21.7 133.1	70	13. 0.	127002	21.9 133.3	75	22.0 132.8	70	18. 0.	127062	21.9 133.1	75	22.0 132.8	70	18. 0.	127122	22.0 132.8	75	22.1 132.3	75	33. 0.
127182	22.3 132.5	75	22.0 132.3	75	11. 0.	128002	22.6 132.8	75	22.7 132.3	75	11. 0.	128062	22.6 132.5	75	22.7 132.3	75	11. 0.	128122	22.9 132.5	75	23.0 132.3	75	11. 0.
128182	23.0 131.5	80	24.0 131.2	75	20. -5.	129002	23.0 130.0	80	24.0 130.9	70	20. -5.	129062	23.0 130.0	80	24.0 130.9	70	20. -5.	129122	23.0 130.5	80	24.0 131.2	75	20. -5.
129182	23.3 130.0	85	23.7 129.7	75	27. -5.	129802	27.0 128.7	85	27.1 128.6	75	28.8 128.6	129862	27.0 128.7	85	27.1 128.6	75	28.8 128.6	129922	27.4 128.4	85	27.4 128.4	75	28.8 128.6
129982	28.0 128.2	70	28.1 128.0	70	29. -5.	130002	29.0 127.3	75	27.7 127.5	75	12. 0.	130062	29.0 127.3	75	30.0 123.1	75	13. 0.	130122	29.4 126.4	70	28.1 126.0	70	29. -5.
130182	29.6 125.8	75	28.7 125.6	70	27. 0.	130802	29.6 125.5	75	29.7 125.5	70	27. 0.	130862	29.6 125.5	75	29.7 125.5	70	27. 0.	130922	29.6 125.5	75	29.7 125.5	70	27. 0.
130982	29.8 125.5	75	29.7 125.5	70	27. 0.	131002	30.5 125.5	65	30.5 125.5	65	31.0 125.2	131062	30.5 125.5	65	30.5 125.5	65	31.0 125.2	131122	30.7 125.1	70	30.2 125.1	70	30.7 125.1
131182	30.7 125.1	75	30.2 125.1	70	18. -5.	131202	30.3 124.8	70	30.4 124.8	70	18. -5.	131262	30.3 124.6	70	30.4 124.8	70	12. 0.	131322	30.3 124.5	70	30.3 124.9	70	16. 0.
131382	30.3 124.5	70	30.3 124.9	70	16. 0.	131402	30.5 125.1	70	30.3 124.9	70	16. 0.	131462	30.6 125.1	70	30.3 124.7	70	27. 0.	131522	30.7 125.1	70	30.3 124.7	70	27. 0.
131582	30.7 125.1	75	30.3 124.7	70	27. 0.	131602	30.7 125.1	75	30.3 124.7	70	27. 0.	131662	30.7 125.1	75	30.3 124.7	70	27. 0.	131722	30.7 125.1	75	30.3 124.7	70	27. 0.
131782	30.7 125.1	75	30.3 124.7	70	27. 0.	131802	30.7 125.1	75	30.3 124.7	70	27. 0.	131862	30.7 125.1	75	30.3 124.7	70	27. 0.	131922	30.7 125.1	75	30.3 124.7	70	27. 0.
131982	30.7 125.1	75	30.3 124.7	70	27. 0.	132002	30.7 125.1	75	30.3 124.7	70	27. 0.	132062	30.7 125.1	75	30.3 124.7	70	27. 0.	132122	30.7 125.1	75	30.3 124.7	70	27. 0.
132182	30.7 125.1	75	30.3 124.7	70	27. 0.	132202	30.7 125.1	75	30.3 124.7	70	27. 0.	132262	30.7 125.1	75	30.3 124.7	70	27. 0.	132322	30.7 125.1	75	30.3 124.7	70	27. 0.
132382	30.7 125.1	75	30.3 124.7	70	27. 0.	132402	30.7 125.1	75	30.3 124.7	70	27. 0.	132462	30.7 125.1	75	30.3 124.7	70	27. 0.	132522	30.7 125.1	75	30.3 124.7	70	27. 0.
132582	30.7 125.1	75	30.3 124.7	70	27. 0.	132602	30.7 125.1	75	30.3 124.7	70	27. 0.	132662	30.7 125.1	75	30.3 124.7	70	27. 0.	132722	30.7 125.1	75	30.3 124.7	70	27. 0.
132782	30.7 125.1	75	30.3 124.7	70	27. 0.	132802	30.7 125.1	75	30.3 124.7	70	27. 0.	132862	30.7 125.1	75	30.3 124.7	70	27. 0.	132922	30.7 125.1	75	30.3 124.7	70	27. 0.
132982	30.7 125.1	75	30.3 124.7	70	27. 0.	133002	30.7 125.1	75	30.3 124.7	70	27. 0.	133062	30.7 125.1	75	30.3 124.7	70	27. 0.	133122	30.7 125.1	75	30.3 124.7	70	27. 0.
133182	30.7 125.1	75	30.3 124.7	70	27. 0.	133202	30.7 125.1	75	30.3 124.7	70	27. 0.	133262	30.7 125.1	75	30.3 124.7	70	27. 0.	133322	30.7 125.1	75	30.3 124.7	70	27. 0.
133382	30.7 125.1	75	30.3 124.7	70	27. 0.	133402	30.7 125.1	75	30.3 124.7	70	27. 0.	133462	30.7 125.1	75	30.3 124.7	70	27. 0.	133522	30.7 125.1	75	30.3 124.7	70	27. 0.
133582	30.7 125.1	75	30.3 124.7	70	27. 0.	133602	30.7 125.1	75	30.3 124.7	70	27. 0.	133662	30.7 125.1	75	30.3 124.7	70	27. 0.	133722	30.7 125.1	75	30.3 124.7	70	27. 0.
133782	30.7 125.1	75	30.3 124.7	70	27. 0.	133802	30.7 125.1	75	30.3 124.7	70	27. 0.	133862	30.7 125.1	75	30.3 124.7	70	27. 0.	133922	30.7 125.1	75	30.3 124.7	70	27. 0.
133982	30.7 125.1	75	30.3 124.7	70	27. 0.	134002	30.7 125.1	75	30.3 124.7	70	27. 0.	134062	30.7 125.1	75	30.3 124.7	70	27. 0.	134122	30.7 125.1	75	30.3 124.7	70	27. 0.
134182	30.7 125.1	75	30.3 124.7	70	27. 0.	134202	30.7 125.1	75	30.3 124.7	70	27. 0.	134262	30.7 125.1	75	30.3 124.7	70	27. 0.	134322	30.7 125.1	75	30.3 124.7	70	27. 0.
134382	30.7 125.1	75	30.3 124.7	70	27. 0.	134402	30.7 125.1	75	30.3 124.7	70	27. 0.	134462	30.7 125.1	75	30.3 124.7	70	27. 0.	134522	30.7 125.1	75	30.3 124.7	70	27. 0.
134582	30.7 125.1	75	30.3 124.7	70	27. 0.	134602	30.7 125.1	75	30.3 124.7	70	27. 0.	134662	30.7 125.1	75	30.3 124.7	70	27. 0.	134722	30.7 125.1	75	30.3 124.7	70	27. 0.
134782	30.7 125.1	75	30.3 124.7	70	27. 0.	134802	30.7 125.1	75	30.3 124.7	70	27. 0.	134862	30.7 125.1	75	30.3 124.7	70	27. 0.	134922	30.7 125.1	75	30.3 124.7	70	27. 0.
134982	30.7 125.1	75	30.3 124.7	70	27. 0.	135002	30.7 125.1	75	30.3 124.7	70	27. 0.	135062	30.7 125.1	75	30.3 124.7	70	27. 0.	135122	30.7 125.1	75	30.3 124.7	70	27. 0.
135182	30.7 125.1	75	30.3 124.7	70	27. 0.	135202	30.7 125.1	75	30.3 124.7	70	27. 0.	135262	30.7 125.1	75	30.3 124.7	70	27. 0.	135322	30.7 125.1	75	30.3 124.7	70	27. 0.
135382	30.7 125.1	75	30.3 124.7	70	27. 0.	135402	30.7 125.1	75	30.3 124.7	70	27. 0.	135462	30.7 125.1	75	30.3 124.7	70	27. 0.	135522	30.7 125.1	75	30.3 124.7	70	27. 0.
135582	30.7 125.1	75	30.3 124.7	70	27. 0.	135602	30.7 125.1	75	30.3 124.7	70	27. 0.	135662	30.7 125.1	75	30.3 124.7	70	27. 0.	135722	30.7 125.1	75	30.3 124.7	70	27. 0.
135782	30.7 125.1	75	30.3 124.7	70	27. 0.	135802	30.7 125.1	75	30.3 124.7	70	27. 0.	135862	30.7 125.1	75	30.3 124.7	70	27. 0.	135922	30.7 125.1	75	30.3 124.7	70	27. 0.
135982	30.7 125.1	75	30.3 124.7	70	27. 0.	136002	30.7 125.1	75	30.3 124.7	70	27. 0.	136062	30.7 125.1	75	30.3 124.7	70	27. 0.	136122	30.7 125.1	75	30.3 124.7	70	27. 0.
136182	30.7 125.1	75	30.3 124.7	70	27. 0.	136202	30.7 125.1	75	30.3 124.7	70	27. 0.	136262	30.7 125.1	75	30.3 124.7	70	27. 0.	136322	30.7 125.1	75	30.3 124.7	70	27. 0.
136382	30.7 125.1	75	30.3 124.7	70	27. 0.	136402	30.7 125.1	75	30.3 124.7	70	27. 0.	136462	30.7 125.1	75	30.3 124.7	70	27. 0.	136522	30.7 125.1	75	30.3 124.7	70	27. 0.
136582	30.7 125.1	75	30.3 124.7	70	27. 0.	136602	30.7 125.1	75	30.3 124.7	70	27. 0.	136662	30.7 125.1	75	30.3 124.7	70	27. 0.	136722	30.7 125.1	75	30.3 124.7	70	27. 0.
136782	30.7 125.1	75	30.3 124.7	70	27. 0.	136802																	

## TROPICAL STORM AGNES

(July)

48-HR FORECAST	48-HR FORECAST	48-HR FORECAST	48-HR FORECAST	24-HR FORECAST				24-HR FORECAST				24-HR FORECAST			
				WINDS	DST WINDS	WINDS	DST WINDS	WINDS	DST WINDS	WINDS	DST WINDS	WINDS	DST WINDS	WINDS	DST WINDS
105.5	114.7	29	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.0	0.0	0.0	0.
129002	17.3	115.2	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.0	0.0	0.
129122	18.0	115.0	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.0	0.0	0.
129122	18.0	115.0	30	18.6	115.0	30.	23.	0.	20.4	115.0	30.	101.0	0.	21.8	111.2
129002	19.3	115.9	30	19.4	115.9	30.	36.	0.	21.0	114.0	30.	50.	-0.	22.4	111.1
129002	20.1	115.0	35	20.4	115.0	30.	18.	-0.	22.4	115.0	35.	90.	-10.	23.0	114.1
129122	21.0	115.7	35	21.0	115.7	30.	12.	-0.	23.4	114.9	30.	130.	-30.	24.0	114.1
129122	21.0	115.5	40	21.5	115.4	35.	8.	-0.	23.9	114.9	30.	137.	-30.	24.0	114.0
129002	21.0	114.6	45	21.6	114.4	45.	8.	0.	22.7	113.0	45.	95.	-10.	23.7	114.0
129122	21.0	114.4	45	21.7	114.5	45.	13.	0.	22.7	112.9	40.	95.	-10.	23.0	114.0
129122	21.0	114.0	49	21.5	113.8	30.	18.	0.	21.1	111.2	35.	95.	-10.	20.8	107.0
129122	21.3	113.7	50	21.4	113.7	35.	6.	0.	21.2	112.0	30.	21.	5.	21.0	110.0
129122	21.3	113.3	50	21.3	113.3	35.	6.	0.	21.2	111.8	45.	19.	0.	21.0	109.0
129122	21.3	112.7	45	21.3	112.8	30.	6.	0.	21.5	110.0	30.	70.	-10.	22.1	108.6
129122	21.3	112.3	45	21.3	112.3	30.	6.	0.	21.6	110.3	30.	90.	110.	22.2	108.4
129122	20.9	111.0	45	21.1	111.7	30.	13.	0.	21.2	110.3	30.	180.	-10.	21.8	108.6
129002	20.9	111.0	45	20.9	111.4	30.	0.	0.	21.0	110.3	30.	180.	-10.	21.0	108.6
129002	20.0	111.8	45	20.6	111.8	30.	0.	0.	20.8	111.8	30.	190.	0.	21.9	110.5
129122	20.4	112.0	45	20.7	112.0	30.	18.	0.	20.7	112.0	45.	192.	0.	20.0	108.0
129122	20.4	112.4	50	20.4	112.4	30.	0.	0.	20.4	112.4	45.	199.	0.	20.0	108.0
129002	20.5	112.9	45	20.6	112.4	45.	6.	0.	22.0	114.0	35.	95.	-10.	22.2	108.4
129002	20.6	113.7	45	20.6	113.7	35.	0.	0.	22.0	114.0	35.	95.	-10.	22.0	108.4
129122	21.3	114.6	45	21.5	114.4	45.	0.	0.	20.0	0.0	0.	-0.	0.	20.0	0.0
129122	22.1	114.9	45	22.1	114.9	45.	17.	0.	20.0	0.0	0.	-0.	0.	20.0	0.0
129002	22.0	114.4	49	22.6	114.6	40.	17.	0.	20.0	0.0	0.	-0.	0.	20.0	0.0
730002	23.0	115.1	30	0.0	0.	-0.	0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.

## ALL FORECASTS

WINDING	24-HR	48-HR	72-HR
Avg Forecast Posit Errnck	10.	97.	243.
Avg Right Angle Errnck	7.	59.	191.
Avg Intensity Mag-Tude Errnck	3.	8.	15.
Avg Intensity Bias	1.	-5.	-13.
Number of Forecasts	22	19	12

10

6

0

## TROPICAL STORM BONNIE

(August)

48-HR FORECAST	48-HR FORECAST	48-HR FORECAST	24-HR FORECAST				24-HR FORECAST				24-HR FORECAST			
			WINDS	DST WINDS	WINDS	DST WINDS	WINDS	DST WINDS	WINDS	DST WINDS	WINDS	DST WINDS	WINDS	DST WINDS
22.5	122.0	15	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.0	0.0	0.
060002	22.2	120.5	15	0.0	0.	-0.	0.	0.	0.0	0.	-0.	0.0	0.0	0.
060002	21.0	119.3	29	0.0	0.0	0.	-0.	0.	0.0	0.	-0.	0.0	0.0	0.
060122	21.0	118.0	20	0.0	0.0	0.	-0.	0.	0.0	0.	-0.	0.0	0.0	0.
060002	21.0	116.7	25	0.0	0.0	0.	-0.	0.	0.0	0.	-0.	0.0	0.0	0.
060122	21.0	116.7	25	0.0	0.0	0.	-0.	0.	0.0	0.	-0.	0.0	0.0	0.
060122	20.2	115.9	25	0.0	0.0	0.	-0.	0.	0.0	0.	-0.	0.0	0.0	0.
060122	19.5	115.1	25	0.0	0.0	0.	-0.	0.	0.0	0.	-0.	0.0	0.0	0.
060002	18.9	114.3	30	0.0	0.0	0.	-0.	0.	0.0	0.	-0.	0.0	0.0	0.
060002	18.9	113.4	30	18.3	113.6	30.	13.	0.	18.2	112.8	35.	230.	-25.	18.0
060122	18.6	112.4	30	18.3	112.7	30.	6.	0.	18.1	109.0	40.	90.	-10.	18.0
060122	18.6	111.2	35	18.2	111.3	35.	13.	0.	18.4	107.4	40.	100.	0.	18.0
061002	17.0	110.0	35	18.3	109.4	35.	41.	0.	18.5	105.3	30.	50.	0.	18.0
061002	17.7	108.7	40	18.1	109.0	40.	29.	0.	0.0	0.0	0.	-80.	0.	18.0
061122	17.7	107.4	40	18.0	107.9	40.	34.	0.	0.0	0.0	0.	-80.	0.	18.0
061122	17.7	106.3	40	18.1	106.9	40.	42.	0.	0.0	0.0	0.	-80.	0.	18.0
061202	17.0	105.0	25	18.1	106.0	35.	64.	10.	0.0	0.0	0.	-80.	0.	18.0

## ALL FORECASTS

WINDING	24-HR	48-HR	72-HR
Avg Forecast Posit Errnck	31.	121.	0.
Avg Right Angle Errnck	70.	36.	0.
Avg Intensity Mag-Tude Errnck	1.	3.	0.
Avg Intensity Bias	1.	0.	0.
Number of Forecasts	8	4	0

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## TYPHOON CARMEN

(August)

BEST TRACK	WARNING				24 HOUR FORECAST				48 HOUR FORECAST				72 HOUR FORECAST				
	POSIT	WIND	POSIT	WIND	ERRORS	WIND	DSI	WIND	POSIT	WIND	DSI	WIND	POSIT	WIND	DSI	WIND	
010122	16.0 145.5	20	0.0 0.0	0.0 -0.0	0.0 0.0	0.0 0.0	0.0 -0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 -0.0	0.0 0.0	0.0 0.0	0.0 0.0	-0.0	0.0	
010122	16.4 145.1	25	0.0 0.0	0.0 -0.0	0.0 0.0	0.0 0.0	0.0 -0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 -0.0	0.0 0.0	0.0 0.0	0.0 0.0	-0.0	0.0	
011004	16.2 144.9	35	0.0 0.0	0.0 -0.0	0.0 0.0	0.0 0.0	0.0 -0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 -0.0	0.0 0.0	0.0 0.0	0.0 0.0	-0.0	0.0	
011004	15.9 144.0	40	15.5 144.3	40.0 29.0	0.0 0.0	15.5 142.3	55.0 110.0	-0.0 0.0	16.7 139.7	55.0 263.0	0.0 0.0	16.4 136.9	70.0 392.0	0.0 0.0	16.5 136.1	75.0 453.0	0.0
011122	15.6 144.4	45	15.7 144.0	45.0 24.0	0.0 0.0	15.4 141.9	60.0 140.0	0.0 0.0	17.0 139.0	60.0 305.0	0.0 0.0	16.9 136.1	75.0 453.0	0.0 0.0	16.9 139.2	75.0 734.0	0.0
011104	15.8 144.4	50	15.8 144.2	45.0 11.0	-5.0 0.0	15.8 143.6	60.0 192.0	0.0 0.0	16.0 141.4	60.0 484.0	0.0 0.0	16.9 139.2	75.0 734.0	0.0 0.0	16.9 139.2	75.0 817.0	-5.0
012004	16.7 143.9	60	16.5 144.0	55.0 13.0	-5.0 0.0	15.8 142.6	65.0 230.0	0.0 0.0	19.0 140.9	70.0 400.0	0.0 0.0	20.7 137.6	75.0 600.0	-5.0 0.0	20.7 137.6	75.0 600.0	-5.0
012122	17.4 143.3	60	17.8 143.6	55.0 29.0	-5.0 0.0	20.4 141.4	65.0 211.0	0.0 0.0	22.0 138.2	70.0 389.0	0.0 0.0	22.5 134.7	75.0 502.0	-5.0	22.5 134.7	75.0 502.0	-5.0
012104	18.8 142.4	55	18.5 142.6	55.0 21.0	0.0 0.0	20.0 139.5	65.0 203.0	0.0 0.0	21.4 136.2	70.0 405.0	-5.0 0.0	22.7 132.8	75.0 544.0	0.0 0.0	22.7 132.8	75.0 544.0	0.0
013002	20.0 141.1	60	19.8 141.2	55.0 13.0	-5.0 0.0	22.6 136.4	65.0 120.0	0.0 0.0	23.0 132.9	70.0 218.0	-10.0 0.0	24.2 128.7	75.0 759.0	0.0 0.0	24.2 128.7	75.0 759.0	0.0
013002	21.1 139.5	65	20.9 139.7	65.0 16.0	0.0 0.0	23.5 134.0	70.0 75.0	0.0 0.0	24.4 129.6	75.0 203.0	-5.0 0.0	25.2 124.6	75.0 207.0	0.0 0.0	25.2 124.6	75.0 207.0	0.0
013122	22.0 137.4	65	22.0 138.0	65.0 6.0	0.0 0.0	23.9 132.0	70.0 70.0	0.0 0.0	24.8 127.0	75.0 12.0	-5.0 0.0	26.5 122.2	75.0 142.0	0.0 0.0	26.5 122.2	75.0 142.0	0.0
013104	22.0 136.4	65	22.0 136.5	65.0 13.0	0.0 0.0	24.2 130.8	70.0 101.0	0.0 0.0	24.1 125.2	70.0 176.0	0.0 0.0	27.4 120.7	75.0 131.0	0.0 0.0	27.4 120.7	75.0 131.0	0.0
014004	23.4 134.9	70	23.2 134.6	70.0 20.0	0.0 0.0	24.7 127.4	70.0 128.0	-10.0 0.0	24.8 121.5	75.0 191.0	0.0 0.0	0.0 0.0	0.0 0.0	-0.0 0.0	0.0 0.0	-0.0 0.0	
014004	24.1 133.4	70	24.2 133.4	70.0 6.0	0.0 0.0	26.7 126.4	75.0 54.0	0.0 0.0	30.0 121.2	50.0 157.0	-25.0 0.0	34.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	
014122	25.0 131.9	70	24.9 131.7	70.0 12.0	0.0 0.0	27.3 124.9	75.0 54.0	-5.0 0.0	31.4 120.1	50.0 227.0	-45.0 0.0	34.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	
014104	25.9 130.2	75	25.6 130.1	70.0 8.0	-5.0 0.0	29.0 124.0	75.0 68.0	0.0 0.0	29.0 124.5	75.0 112.0	0.0 0.0	30.0 122.0	75.0 45.0	0.0 0.0	30.0 122.0	75.0 45.0	0.0
015002	26.0 128.7	70	26.6 128.6	70.0 8.0	-5.0 0.0	29.8 124.5	75.0 112.0	0.0 0.0	30.0 124.5	75.0 156.0	-45.0 0.0	30.0 124.5	75.0 156.0	0.0 0.0	30.0 124.5	75.0 156.0	0.0
015122	27.1 127.3	70	27.2 127.2	70.0 8.0	-5.0 0.0	29.8 121.6	60.0 122.0	-15.0 0.0	30.0 121.6	60.0 180.0	0.0 0.0	30.0 121.6	60.0 180.0	0.0 0.0	30.0 121.6	60.0 180.0	0.0
015104	27.1 125.9	70	27.6 125.8	70.0 8.0	-5.0 0.0	29.6 121.4	60.0 156.0	-45.0 0.0	30.0 121.4	60.0 180.0	0.0 0.0	30.0 121.4	60.0 180.0	0.0 0.0	30.0 121.4	60.0 180.0	0.0
015204	28.0 124.6	75	28.0 124.6	75.0 0.0	0.0 0.0	29.4 123.5	60.0 150.0	0.0 0.0	30.0 123.5	60.0 180.0	0.0 0.0	30.0 123.5	60.0 180.0	0.0 0.0	30.0 123.5	60.0 180.0	0.0
016002	28.3 123.0	75	28.3 123.6	75.0 11.0	0.0 0.0	29.7 120.3	50.0 150.0	0.0 0.0	30.0 120.3	50.0 180.0	0.0 0.0	30.0 120.3	50.0 180.0	0.0 0.0	30.0 120.3	50.0 180.0	0.0
016002	28.5 123.4	75	28.5 122.9	75.0 26.0	0.0 0.0	29.0 124.0	60.0 120.0	0.0 0.0	30.0 124.0	60.0 180.0	0.0 0.0	30.0 124.0	60.0 180.0	0.0 0.0	30.0 124.0	60.0 180.0	0.0
016122	28.7 123.2	75	28.5 122.8	75.0 24.0	0.0 0.0	29.7 120.5	50.0 140.0	-25.0 0.0	30.0 120.5	50.0 180.0	0.0 0.0	30.0 120.5	50.0 180.0	0.0 0.0	30.0 120.5	50.0 180.0	0.0
016104	28.7 122.7	70	28.9 122.4	65.0 13.0	-5.0 0.0	29.9 121.0	40.0 137.0	-15.0 0.0	30.0 121.0	40.0 180.0	0.0 0.0	30.0 121.0	40.0 180.0	0.0 0.0	30.0 121.0	40.0 180.0	0.0
017002	28.2 122.0	65	28.7 122.5	65.0 30.0	0.0 0.0	29.4 123.5	60.0 30.0	0.0 0.0	30.0 123.5	60.0 180.0	0.0 0.0	30.0 123.5	60.0 180.0	0.0 0.0	30.0 123.5	60.0 180.0	0.0
017102	28.3 122.8	60	28.5 122.7	60.0 13.0	0.0 0.0	29.5 123.5	65.0 88.0	0.0 0.0	30.0 123.5	65.0 120.0	0.0 0.0	30.0 123.5	65.0 120.0	0.0 0.0	30.0 123.5	65.0 120.0	0.0
017102	28.6 123.9	55	28.5 122.4	55.0 12.0	0.0 0.0	29.4 123.5	50.0 88.0	0.0 0.0	30.0 123.5	50.0 120.0	0.0 0.0	30.0 123.5	50.0 120.0	0.0 0.0	30.0 123.5	50.0 120.0	0.0
017102	28.6 123.6	55	28.6 123.1	55.0 20.0	0.0 0.0	29.8 123.9	50.0 60.0	0.0 0.0	30.0 123.9	50.0 60.0	0.0 0.0	30.0 123.9	50.0 60.0	0.0 0.0	30.0 123.9	50.0 60.0	0.0
018002	28.6 123.5	50	29.2 123.5	50.0 24.0	0.0 0.0	30.6 124.6	45.0 84.0	0.0 0.0	33.0 127.7	40.0 89.0	10.0 0.0	34.0 0.0	0.0 0.0	-0.0 0.0	0.0 0.0	-0.0 0.0	
018002	28.1 123.7	50	28.7 123.4	50.0 36.0	0.0 0.0	30.6 124.6	45.0 44.0	0.0 0.0	30.0 124.6	45.0 44.0	0.0 0.0	30.0 124.6	45.0 44.0	0.0 0.0	30.0 124.6	45.0 44.0	0.0
018122	28.1 124.1	45	28.3 124.0	45.0 13.0	0.0 0.0	30.1 125.1	45.0 82.0	0.0 0.0	30.0 125.1	45.0 82.0	0.0 0.0	30.0 125.1	45.0 82.0	0.0 0.0	30.0 125.1	45.0 82.0	0.0
018104	28.7 124.0	45	28.4 124.1	45.0 19.0	0.0 0.0	30.3 125.2	40.0 158.0	0.0 0.0	30.0 125.2	40.0 158.0	0.0 0.0	30.0 125.2	40.0 158.0	0.0 0.0	30.0 125.2	40.0 158.0	0.0
018104	29.2 124.5	45	29.2 124.2	45.0 16.0	0.0 0.0	31.5 125.8	40.0 203.0	10.0 0.0	30.0 125.8	40.0 203.0	0.0 0.0	30.0 125.8	40.0 203.0	0.0 0.0	30.0 125.8	40.0 203.0	0.0
018104	30.0 125.1	45	29.6 124.7	45.0 32.0	0.0 0.0	30.0 124.0	40.0 20.0	-10.0 0.0	30.0 124.0	40.0 20.0	0.0 0.0	30.0 124.0	40.0 20.0	0.0 0.0	30.0 124.0	40.0 20.0	0.0
018122	31.4 125.6	45	30.6 125.5	45.0 48.0	0.0 0.0	30.0 124.0	40.0 20.0	-10.0 0.0	30.0 124.0	40.0 20.0	0.0 0.0	30.0 124.0	40.0 20.0	0.0 0.0	30.0 124.0	40.0 20.0	0.0
018122	32.9 125.8	45	31.8 126.0	45.0 66.0	0.0 0.0	30.0 124.0	40.0 20.0	-10.0 0.0	30.0 124.0	40.0 20.0	0.0 0.0	30.0 124.0	40.0 20.0	0.0 0.0	30.0 124.0	40.0 20.0	0.0
020002	34.0 126.8	30	34.7 126.4	35.0 21.0	5.0 0.0	30.0 124.0	40.0 20.0	-10.0 0.0	30.0 124.0	40.0 20.0	0.0 0.0	30.0 124.0	40.0 20.0	0.0 0.0	30.0 124.0	40.0 20.0	0.0

## ALL FORECASTS

MMNG 24-HR 48-HR 72-HR

AVG FORECAST POSIT ERROR 29. 116. 217. 0.

AVG RIGHT ANGLE ERROR 20. 73. 131. 0.

AVG INTENSITY MAGNITUDE FRORH 1. 16. 30. 0.

AVG INTENSITY BIAS -1. -3. -3. 0.

NUMBER OF FORECASTS 10 6 2 0

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1

## TROPICAL DEPRESSION 14

(August)

BEST TRACK	WARNING				24 HOUR FORECAST				48 HOUR FORECAST				72 HOUR FORECAST				
	POSIT	WIND	POSIT	WIND	ERRORS	POSIT	WIND	DST WIND	POSIT	WIND	ERRORS	POSIT	WIND	DST WIND	POSIT	WIND	DST WIND
B14062	9.0 162.2	10	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B14062	9.8 161.0	10	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B14122	10.8 159.6	10	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B14182	11.0 158.6	10	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B15022	12.7 157.5	10	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B15062	13.6 156.7	10	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B15122	14.5 155.6	10	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B15182	15.0 155.0	10	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B16022	16.1 154.0	15	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B16062	17.0 153.0	10	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B16122	17.6 152.2	10	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B16182	19.7 151.3	10	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B17022	19.4 150.7	10	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B17062	20.0 150.4	15	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B17122	20.6 149.9	15	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B17182	21.3 149.4	15	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B18022	21.9 148.9	15	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B18062	23.0 147.5	15	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B18122	23.9 145.4	20	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B18182	24.7 143.2	25	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B19022	25.0 141.1	30	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B19062	26.7 139.1	30	26.7 139.0	30	5.	0.0 30.9	132.4	35.	14.7 139.0	10.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B19122	28.0 137.5	30	27.8 137.4	30	13.	0.0 32.2	132.0	35.	19.0 137.5	15.	0.0	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0
B19182	29.4 136.1	30	28.4 135.2	30	76.	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0
B20022	30.9 135.0	30	31.0 135.1	30	86.	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0
B20062	32.6 134.5	25	32.3 134.5	25	18.	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0
B20122	34.6 134.5	20	34.5 133.9	25	30.	5.	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0

ALL FORECASTS  
 WKNG 24-HR 48-HR 72-HR  
 AVG FORECAST POSIT ERROR 25. 169. 0. 0.  
 AVG HIGH ANGLE ERROR 23. 127. 0. 0.  
 AVG INTENSITY MAGNITUDE FHRUR 1. 13. 0. 0.  
 AVG INTENSITY BIAS 1. 13. 0. 0.  
 NUMBER OF FORECASTS 6 2 0 0

0

## TYPHOON ELAINE

(August)

BEST TRACK				WARNING				24 HOUR FORECAST				48 HOUR FORECAST				72 HOUR FORECAST				
POSIT	WIND	PSDST	WIND DST WIND	POSIT	WIND	DSI	WIND	POSIT	WIND	DSI	WIND	POSIT	WIND	DSI	WIND	POSIT	WIND	DSI	WIND	
818002	9.0 135.5	15	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
818062	9.5 135.2	15	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
818122	10.0 135.0	15	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
818182	10.5 134.9	15	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
819002	11.0 134.7	15	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
819062	11.5 134.4	15	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
819122	11.5 134.0	15	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
819182	11.5 133.6	15	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
820002	11.5 133.0	15	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
820062	12.0 132.3	15	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
820122	13.0 131.8	15	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
820182	14.0 130.9	20	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
821002	14.9 130.1	20	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
821062	15.7 129.2	20	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
821122	16.1 128.2	20	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
821182	16.6 127.3	25	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
822002	16.9 126.5	25	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
822062	17.4 125.8	25	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
822122	17.7 125.2	25	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
822182	17.9 124.6	25	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
823002	18.0 123.8	25	0.0 0.0 0.0	0.0 -0.0 0.	0.0 0.0	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	0.0 0.0	0.0 -0.0 0.	0.0	-0.0	
823062	18.1 123.1	25	18.2 123.2	25	8.0	0.	19.5 120.1	30	13.2	-10.	20.0	117.0	40	20.4	-5.	21.0	113.6	45.	20.0	-10.
823122	18.0 122.4	25	18.3 122.3	25	19.0	0.	19.3 119.1	30	13.8	-10.	20.1	115.8	40	22.1	-5.	20.8	112.6	45.	17.6	-15.
823182	17.6 121.5	30	18.4 121.2	30	34.0	48.0	19.3 118.3	35	13.9	-5.	19.9 115.0	40	21.4	-10.	20.5	111.9	45.	14.1	-15.	
824002	17.4 120.7	35	17.6 120.3	35	35.0	26.0	18.1 117.0	40	9.3	0.	18.6 113.7	45	19.5	-10.	19.4	110.4	50.	14.1	-10.	
824062	17.3 120.0	40	17.1 119.7	40	21.0	0.	16.8 115.9	45	11.8	0.	16.6 112.6	50	24.2	-5.	17.2	109.4	55.	25.9	-10.	
824122	17.0 119.3	40	16.9 119.2	40	8.0	0.	16.5 115.4	45	15.8	0.	16.6 111.7	50	26.0	-10.	17.3	108.0	55.	26.5	-10.	
824182	17.1 119.1	40	16.6 118.8	40	34.0	0.	15.0 116.4	45	14.9	-5.	15.0 112.7	50	30.1	-10.	15.4	109.0	55.	36.5	-5.	
825002	17.5 118.5	40	17.1 118.8	40	29.0	0.	17.1 118.8	50	11.4	-5.	17.2 117.2	50	30.3	-10.	17.2	115.4	55.	53.3	-25.	
825062	17.3 117.9	45	17.4 118.1	45	13.0	0.	17.5 117.6	50	10.7	-5.	17.4 115.7	55	30.3	-10.	17.0	110.0	50.	30.0	-10.	
825122	17.1 118.1	45	17.2 118.1	45	6.0	0.	17.5 117.4	50	16.0	-10.	17.4 115.8	55	39.0	-10.	17.0	110.0	50.	30.0	-10.	
825182	17.5 117.8	50	17.2 118.1	50	25.0	0.	17.7 117.2	55	20.6	-5.	17.4 115.2	60	42.4	-10.	17.0	110.0	50.	30.0	-10.	
826002	18.1 117.1	55	18.3 116.8	55	21.0	0.	17.9 112.9	65	13.2	5.	17.5 109.5	65	27.4	35.	17.0	109.0	50.	30.0	-10.	
826062	18.8 116.3	55	18.5 115.7	55	36.0	0.	18.4 111.4	65	15.1	0.	18.0 108.0	65	20.0	0.	17.5	108.0	50.	30.0	-10.	
826122	19.3 115.3	60	19.3 115.2	60	6.0	0.	21.3 111.6	65	7.6	0.	19.0 106.0	65	18.0	0.	18.5	106.0	50.	30.0	-10.	
826182	19.8 114.3	60	20.2 114.2	60	25.0	0.	21.6 112.0	65	18.3	15.	20.0 104.0	65	20.0	0.	19.0	104.0	50.	30.0	-10.	
827002	20.1 112.8	60	20.2 112.9	60	8.0	0.	21.0 108.1	50	6.9	20.	20.0 102.0	60	18.0	0.	19.0	102.0	50.	30.0	-10.	
827062	20.9 111.8	65	20.7 111.8	65	12.0	0.	20.0 100.0	60	7.0	0.	20.0 98.0	60	18.0	0.	19.0	98.0	50.	30.0	-10.	
827122	21.5 110.4	65	21.6 110.8	65	23.0	0.	20.0 98.0	60	7.0	0.	20.0 96.0	60	18.0	0.	19.0	96.0	50.	30.0	-10.	
827182	21.5 108.7	50	21.8 109.5	50	48.0	0.	20.0 98.0	60	7.0	0.	20.0 96.0	60	18.0	0.	19.0	96.0	50.	30.0	-10.	
828002	21.5 107.1	30	21.7 106.7	30	25.0	0.	20.0 98.0	60	7.0	0.	20.0 96.0	60	18.0	0.	19.0	96.0	50.	30.0	-10.	

## ALL FORECASTS

## TYPHOONS WHILE OVER 35 KTS

WIND	24-HR	48-HR	72-HR	WIND	24-HR	48-HR	72-HR
Avg Forecast Posit Error	22.	132.	263.	21.	137.	278.	224.
Avg Right Angle Error	15.	77.	157.	17.	80.	143.	156.
Avg Intensity Magnitude Error	0.	6.	11.	13.	0.	5.	11.
Avg Intensity Bias	0.	-1.	-3.	-5.	0.	-2.	-7.
Number of Forecasts	20	16	12	8	16	15	11
	3	1	6				

TYPHOON FAY

(August-September)

	ALL FORECASTS			TYPHOONS WHILE OVER 35 KTS				
	WNNG	24-HR	48-HR	72-HR	WNNG	24-HR	48-HR	72-HR
Avg Forecast Posit Error	15.	158.	360.	514.	15.	158.	360.	514.
Avg High Angle Error	12.	113.	295.	396.	12.	113.	282.	396.
Avg Intensity Magnitude Error	4.	17.	21.	26.	5.	17.	21.	26.
Avg Intensity Bias	2.	5.	3.	4.	0.	5.	3.	9.
Number of Forecasts	44	40	36	29	42	40	38	29
	10	6	9					

TROPICAL STORM GLORIA

(August-September)

BEST TRACK				WARNING				24 HOUR FORECAST				48 HOUR FORECAST				72 HOUR FORECAST			
POSIT	WIND	POSIT	WIND	POSIT	WIND	POSIT	WIND	POSIT	WIND	POSIT	WIND	POSIT	WIND	POSIT	WIND	POSIT	WIND		
020122	20.4 130.4	20	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.		
020122	20.4 129.8	25	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.		
020002	21.0 129.3	25	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.		
020002	21.0 128.5	25	21.3 128.7	30	16.5	22.1 125.9	40	20.0	0.0	23.5 122.8	55	48.0	25.	0.0	0.0	0.0	-0.	0.0	
020122	22.2 128.0	30	21.0 128.7	30	30.0	22.3 126.5	40	21.0	0.0	23.5 123.8	55	49.9	25.	0.0	0.0	0.0	-0.	0.0	
020122	23.1 128.0	35	22.0 127.4	35	49.0	23.8 125.6	45	22.1	10.	25.1 123.5	55	51.0	30.	0.0	0.0	0.0	-0.	0.0	
030002	23.0 128.3	40	24.2 128.8	40	40.0	36.0	27.7 130.7	45.	7.5	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
030002	24.0 128.5	40	24.6 128.5	40	40.0	36.0	27.8 129.4	45.	2.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
030122	25.4 128.0	40	25.2 128.9	40	20.0	6.0	28.1 129.9	40.	7.5	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
030122	26.3 128.8	35	26.4 128.5	35	17.0	0.0	30.3 128.8	35.	14.5	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
031002	27.2 129.4	30	27.5 129.2	30	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
031002	28.0 130.2	30	28.0 130.1	30	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
031122	28.8 131.0	30	28.7 130.8	30	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
031122	29.7 131.6	25	29.5 131.3	30	20.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

ALL FORECASTS									
WNG	24-HR	48-HR	72-HR						
Avg Forecast Posit Error	.21.	138.	496.	0.					
Avg Right Angle Errror	13.	79.	331.	0.					
Avg Intensity Magnitude Errror	1.	9.	27.	0.					
Avg Intensity Bias	1.	9.	27.	0.					
Number of Forecasts	11	7	3	0					

3 0

TROPICAL STORM HESTER

(August-September)

BEST TRACK				WARNING				24 HOUR FORECAST				48 HOUR FORECAST				72 HOUR FORECAST			
POSIT	WIND	POSIT	WIND	POSIT	WIND	POSIT	WIND	POSIT	WIND	POSIT	WIND	POSIT	WIND	POSIT	WIND	POSIT	WIND		
020002	26.8 150.8	20	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.		
020122	27.7 150.2	25	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.		
020122	28.2 149.8	25	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.		
020002	28.9 149.2	25	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.		
020122	29.6 149.0	30	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.		
020122	30.1 149.1	30	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.		
020122	30.6 149.4	35	0.0 0.0	0.0 -0.	0.0	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.	0.0 0.0	0.0 -0.		
030002	31.4 149.8	40	31.3 150.3	40	26.0	34.1 153.8	45	8.5	-5.	37.2 158.3	45	30.0	5.	0.0	0.0	0.0	0.0		
030002	32.2 150.2	45	32.4 150.5	45	19.	35.6 154.3	45.	2.5	0.	0.0	0.0	0.	0.0	0.0	0.0	0.0	0.0		
030122	33.0 150.7	45	33.0 150.8	45	5.	35.7 153.2	40.	1.5	5.	0.0	0.0	0.	0.0	0.0	0.0	0.0	0.0		
030122	33.8 151.4	50	33.0 151.2	45	16.	36.0 153.5	45.	31.5	5.	0.0	0.0	0.	0.0	0.0	0.0	0.0	0.0		
031002	34.6 152.1	50	34.4 152.3	45	15.	37.1 155.5	40.	40.5	0.	0.0	0.0	0.	0.0	0.0	0.0	0.0	0.0		
031002	35.8 153.7	45	35.7 152.9	45	39.	0.	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.0	0.0	0.0		
031122	37.1 155.0	45	36.6 156.0	45	30.	0.	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.0	0.0	0.0		
031122	38.7 159.2	40	38.0 158.1	45	66.	5.	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.0	0.0	0.0		
041002	40.8 162.8	40	39.7 161.6	40.	85.	0.	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.0	0.0	0.0		

ALL FORECASTS									
WNG	24-HR	48-HR	72-HR						
Avg Forecast Posit Error	34.	198.	300.	0.					
Avg Right Angle Errror	17.	28.	52.	0.					
Avg Intensity Magnitude Errror	2.	3.	5.	0.					
Avg Intensity Bias	-1.	-1.	5.	0.					
Number of Forecasts	9	5	1	0					

2 0

## TYPHOON IRMA

(September)

HESI TRACK			WARNING			24 HOUR FORECAST						48 HOUR FORECAST						72 HOUR FORECAST							
POSIT	WIND	WSI(S)	FRHMS			POSIT	WIND	WSI	ENDU	ERHMS			POSIT	WIND	WSI	ENDU	ERHMS			POSIT	WIND	WSI	ENDU		
			4INB	SDS	WIND					4INB	SDS	WIND					4INB	SDS	WIND						
Y00122	21.0	123.8	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.		
Y00122	21.4	123.3	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.		
Y10002	21.4	122.8	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.		
Y10062	21.4	122.5	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.		
Y10122	21.5	122.2	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.		
Y10182	21.6	121.9	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.		
Y11002	21.6	121.8	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.		
Y11062	22.5	121.8	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.		
Y11122	23.2	122.3	30	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.		
Y11182	23.2	122.7	30	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.		
Y12002	24.9	122.6	35	25.0	122.9	30	17.	25.0	28.4	124.7	0.0	90.	-10.	25.1	32.1	127.9	45.	20.6	-15.	36.2	133.0	35.	27.	17.	
Y12062	24.9	123.0	40	25.0	122.8	36	26.	-11.	25.0	28.1	124.4	55.	83.2	0.	31.4	32.7	127.5	61.	13.3	0.	34.9	131.7	50.	43.	19.
Y12122	25.9	123.5	50	25.8	124.0	45	28.	25.8	28.7	125.7	55.	92.5	0.	31.9	32.7	127.8	0.	40.	-5.	35.3	131.3	50.	91.	20.	
Y12182	26.0	123.4	50	26.0	123.9	45	29.	25.5	29.2	125.2	55.	42.2	7.	32.4	32.7	127.3	0.	6.	-5.	35.7	134.9	45.	205.	25.	
Y13002	27.5	123.4	50	27.2	123.7	45	12.	25.0	30.0	124.1	55.	31.2	-5.	33.0	32.7	127.2	55.	80.	5.	44.0	0.0	0.	-0.	0.	
Y13062	27.7	123.9	55	27.6	124.0	50	5.	25.0	30.4	125.4	60.	24.2	0.	30.0	32.5	128.0	0.	150.	15.	44.0	0.0	0.	-0.	0.	
Y13122	28.3	124.0	55	26.4	124.2	50	12.	25.	31.0	126.1	60.	30.2	-5.	33.8	32.8	129.3	50.	190.	20.	44.0	0.0	0.	-0.	0.	
Y13182	29.1	124.4	60	29.2	124.5	55	6.	-5.	32.7	126.6	60.	30.3	-5.	34.3	33.3	130.3	45.	234.	25.	44.0	0.0	0.	-0.	0.	
Y14002	30.4	124.7	60	29.9	124.7	55	6.	-5.	32.4	126.2	60.	13.2	10.	44.0	0.0	0.	-0.	0.	44.0	0.0	0.	-0.	0.		
Y14062	30.6	125.4	60	30.6	125.2	60	10.	0.	33.8	127.9	65.	15.0	25.	44.0	0.0	0.	-0.	0.	44.0	0.0	0.	-0.	0.		
Y14122	31.5	126.1	65	31.8	126.0	65	19.	0.	34.6	124.3	65.	18.2	35.	44.0	0.0	0.	-0.	0.	44.0	0.0	0.	-0.	0.		
Y14182	32.3	127.3	65	32.2	127.0	65	16.	0.	35.2	130.4	60.	20.2	40.	44.0	0.0	0.	-0.	0.	44.0	0.0	0.	-0.	0.		
Y15002	33.1	128.8	50	33.0	128.7	65	4.	15.	34.0	0.0	0.	-0.	0.	0.	0.0	0.	0.	-0.	0.	0.0	0.	0.	-0.		
Y15062	33.4	130.9	40	34.2	130.7	50	10.	10.	0.	0.	0.	0.	-0.	0.	0.0	0.	0.	-0.	0.	0.0	0.	0.	-0.		
Y15122	34.7	133.0	30	34.7	133.0	50	0.	0.	0.	0.	0.	0.	-0.	0.	0.0	0.	0.	-0.	0.	0.0	0.	0.	-0.		
Y15182	34.9	134.5	20	0.0	0.0	0.	-0.	0.	0.	0.	0.	-0.	0.	0.	0.0	0.	0.	-0.	0.	0.0	0.	0.	-0.		

	ALL FORECASTS			TYPHOONS WHILE OVER 35 KTS				
	WHNG	24-HR	48-HR	72-HR	WHNG	24-HR	40-HR	72-HR
Avg Forecast Positi Errror	14.	92.	136.	154.	15.	71.	100.	160.
Avg High Angle Errror	12.	44.	31.	67.	13.	42.	34.	66.
Avg Intensity Magnitude Errror	5.	12.	11.	18.	5.	7.	8.	13.
Avg Intensity Bias	-2.	7.	5.	10.	0.	1.	-1.	-3.
Number of Forecasts	15	12	8	4	14	10	6	2
	9	6	4					

## TYPHOON JUDY

(September)

BEST TRACK			WARNING			24 HOUR FORECAST						48 HOUR FORECAST						72 HOUR FORECAST			
POSIT	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	
909062	16.47	20	0.0	0.0	0.	-0.	0.	0.0	0.0	-0.	0.	0.0	0.	-0.	0.	0.0	0.	-0.	0.	0.	
909122	16.6	163.1	20	0.0	0.0	0.	-0.	0.	0.0	0.0	-0.	0.	0.0	0.	-0.	0.	0.0	0.	-0.	0.	
909182	17.1	161.5	20	0.0	0.0	0.	-0.	0.	0.0	0.0	-0.	0.	0.0	0.	-0.	0.	0.0	0.	-0.	0.	
910002	20.4	160.3	20	0.0	0.0	0.	-0.	0.	0.0	0.0	-0.	0.	0.0	0.	-0.	0.	0.0	0.	-0.	0.	
910062	20.6	159.3	20	0.0	0.0	0.	-0.	0.	0.0	0.0	-0.	0.	0.0	0.	-0.	0.	0.0	0.	-0.	0.	
910122	21.5	158.3	20	0.0	0.0	0.	-0.	0.	0.0	0.0	-0.	0.	0.0	0.	-0.	0.	0.0	0.	-0.	0.	
910182	22.2	157.4	20	0.0	0.0	0.	-0.	0.	0.0	0.0	-0.	0.	0.0	0.	-0.	0.	0.0	0.	-0.	0.	
911002	22.7	155.8	25	0.0	0.0	0.	-0.	0.	0.0	0.0	-0.	0.	0.0	0.	-0.	0.	0.0	0.	-0.	0.	
911062	23.1	154.3	25	0.0	0.0	0.	-0.	0.	0.0	0.0	-0.	0.	0.0	0.	-0.	0.	0.0	0.	-0.	0.	
911122	23.3	152.7	25	0.0	0.0	0.	-0.	0.	0.0	0.0	-0.	0.	0.0	0.	-0.	0.	0.0	0.	-0.	0.	
911182	23.2	151.2	25	0.0	0.0	0.	-0.	0.	0.0	0.0	-0.	0.	0.0	0.	-0.	0.	0.0	0.	-0.	0.	
912002	23.1	149.9	30	0.0	0.0	0.	-0.	0.	0.0	0.0	-0.	0.	0.0	0.	-0.	0.	0.0	0.	-0.	0.	
912062	23.3	148.9	30	0.0	0.0	0.	-0.	0.	0.0	0.0	-0.	0.	0.0	0.	-0.	0.	0.0	0.	-0.	0.	
912122	23.6	148.0	35	0.0	0.0	0.	-0.	0.	0.0	0.0	-0.	0.	0.0	0.	-0.	0.	0.0	0.	-0.	0.	
912182	24.0	147.4	40	0.0	0.0	0.	-0.	0.	0.0	0.0	-0.	0.	0.0	0.	-0.	0.	0.0	0.	-0.	0.	
913002	24.6	146.7	40	24.6	146.6	50	5.	10.	26.4	144.3	55.	89.	5.	27.0	141.7	70.	186.	-5.	28.8	139.3	70.
913062	25.4	146.3	45	25.2	146.2	50.	13.	5.	27.5	144.4	55.	97.	5.	24.6	143.3	70.	179.	-10.	32.2	141.4	70.
913122	26.3	146.0	50	26.6	146.2	50.	21.	0.	30.0	146.0	50.	102.	5.	32.4	147.6	65.	160.	-20.	33.7	151.7	55.
913182	27.0	145.5	55	27.2	145.7	55.	16.	0.	30.7	145.0	50.	105.	0.	32.0	147.2	65.	101.	-25.	33.8	150.3	50.
914002	27.6	145.3	60	27.8	145.4	60.	13.	0.	30.3	145.0	55.	51.	-10.	32.9	147.5	60.	92.	-30.	33.9	153.0	50.
914062	28.3	145.0	60	28.6	145.1	60.	19.	0.	30.5	144.4	65.	65.	-15.	32.1	145.9	55.	156.	-35.	33.9	151.3	40.
914122	28.8	144.6	65	28.4	145.0	65.	32.	0.	30.7	145.4	65.	59.	-20.	31.6	148.8	55.	293.	-35.	0.	0.	-0.
914182	29.4	144.3	70	29.3	144.3	65.	6.	-5.	31.4	144.7	65.	62.	-25.	32.7	148.4	50.	357.	-20.	0.	0.	-0.
915002	29.8	144.2	70	29.8	144.2	70.	0.	-5.	32.1	145.9	65.	90.	-25.	33.0	151.3	50.	436.	0.	0.	0.	-0.
915062	30.4	144.3	80	30.6	144.1	75.	10.	-5.	32.3	147.0	60.	102.	-30.	33.2	152.0	45.	562.	5.	0.	0.	-0.
915122	31.4	144.6	85	31.1	144.8	75.	21.	-10.	32.7	148.5	60.	230.	-30.	0.	0.	0.	-0.	0.	0.	0.	-0.
915182	32.0	145.2	90	32.3	144.9	90.	16.	0.	35.4	144.3	75.	220.	5.	0.	0.	0.	-0.	0.	0.	0.	-0.
916002	33.7	146.1	90	33.4	145.6	90.	31.	0.	36.2	149.2	85.	302.	15.	0.	0.	0.	-0.	0.	0.	0.	-0.
916062	35.0	147.4	90	34.9	147.2	90.	11.	0.	38.3	153.4	85.	262.	45.	0.	0.	0.	-0.	0.	0.	0.	-0.
916122	36.5	149.2	90	36.6	149.5	90.	16.	0.	0.	0.	0.	0.	-5.	0.	0.	0.	0.	-0.	0.	0.	-0.
916182	38.2	151.3	70	37.7	150.7	70.	41.	0.	0.	0.	0.	0.	-5.	0.	0.	0.	0.	-0.	0.	0.	-0.
917002	40.1	153.4	50	40.0	154.0	50.	28.	0.	0.	0.	0.	0.	-5.	0.	0.	0.	0.	-0.	0.	0.	-0.
917062	42.0	156.6	40	41.9	155.5	40.	49.	0.	0.	0.	0.	0.	-5.	0.	0.	0.	0.	-0.	0.	0.	-0.

	ALL FORECASTS				TYPHOONS WHILE OVER 35 KT			
	MMNG	24-HR	48-HR	72-HR	MMNG	24-HR	48-HR	72-HR
Avg Forecast Posit Error	19.	127.	242.	346.	19.	127.	244.	346.
Avg Right Angle Error	12.	51.	131.	185.	12.	51.	131.	185.
Avg Intensity Magnitude Error	2.	17.	19.	16.	2.	17.	19.	16.
Avg Intensity Bias	-1.	-5.	-18.	-16.	0.	-5.	-18.	-16.
Number of Forecasts	18	14	10	5	18	14	10	6

## TROPICAL STORM KIT

(September)

HESI TRACK	WARNING	24 HOUR FORECAST						48 HOUR FORECAST						72 HOUR FORECAST						
		POSIT	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	
920002	13.6 133.6 15	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	
920062	13.5 132.5 15	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	
920122	13.4 131.2 20	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	
920182	13.4 130.0 20	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	
921002	13.4 129.0 20	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	0.0 0.0	0. -0. 0.	
921062	13.6 128.0 20	13.5 128.6	20. 35.	0.0 0.0	14.2 126.7	30. 18.5	5.	15.0 124.3	40. 49.7	10.	15.7 121.1	45. 47.8	5.							
921122	14.0 127.0 25	13.6 128.1	25. 68.	0.	14.3 126.1	35. 22.5	10.	15.2 123.4	40. 46.1	5.	15.8 120.3	40. 47.6	0.							
921182	14.4 125.9 25	13.8 127.6	25. 105.	0.	14.6 125.5	35. 43.5	5.	15.4 122.0	40. 46.1	5.	16.0 119.4	40. 46.2	-10.							
922002	14.7 124.9 25	14.8 125.1	25. 13.	0.	16.1 120.9	30. 27.2	0.	16.4 117.3	40. 22.4	5.	17.4 113.1	45. 136.	-5.							
922062	15.1 123.6 25	14.8 123.6	25. 18.	0.	15.8 118.5	30. 17.2	0.	15.5 113.8	40. 75.	0.	14.9 109.2	45. 213.	0.							
922122	15.5 122.4 25	15.2 122.1	25. 25.	0.	15.8 117.1	40. 10.2	5.	15.4 112.8	50. 109.	10.	15.1 108.2	40. 202.	0.							
922182	16.3 118.1 30	16.5 119.0	30. 53.	0.	16.7 114.7	40. 8.5	5.	16.4 110.1	50. 107.	0.	16.0 106.0	40. 20.0	0.							
923002	15.6 116.2 30	17.0 117.3	30. 105.	0.	17.4 113.1	40. 10.5	5.	17.4 109.4	50. 87.	0.	17.0 105.1	40. 100.	0.							
923062	14.6 115.7 30	14.4 115.0	30. 42.	0.	14.0 110.0	40. 21.2	0.	14.0 106.0	40. 0.0	0.	14.0 102.0	40. 0.0	0.							
923122	15.3 115.4 35	15.2 115.3	35. 8.	0.	15.3 110.8	30. 13.1	10.	15.0 106.0	40. 0.0	0.	15.0 102.0	40. 0.0	0.							
923182	15.3 114.6 35	15.3 114.7	35. 6.	0.	15.7 110.6	30. 12.5	0.	16.0 106.7	30. 13.6.	-10.	16.0 102.0	40. 0.0	0.							
924002	15.7 113.6 35	15.4 113.5	35. 19.	0.	16.3 109.1	50. 14.0	0.	16.0 105.0	40. 0.0	0.	16.0 101.0	40. 0.0	0.							
924062	16.3 112.9 40	16.2 112.8	40. 6.	0.	18.1 104.1	50. 4.5	5.	19.4 104.7	30. 15.5.	-10.	20.0 102.0	40. 0.0	0.							
924122	17.1 112.1 40	17.1 111.9	40. 11.	0.	19.8 104.7	35. 85.	-5.	20.0 104.0	40. 0.0	0.	20.0 100.0	40. 0.0	0.							
924182	17.6 111.5 50	17.8 111.5	50. 12.	0.	20.5 108.9	35. 13.6	-5.	20.0 104.0	40. 0.0	0.	20.0 100.0	40. 0.0	0.							
925002	18.0 110.8 50	18.1 111.1	50. 18.	0.	20.7 109.3	35. 19.1	-5.	20.0 104.0	40. 0.0	0.	20.0 100.0	40. 0.0	0.							
925062	18.4 109.9 45	18.4 110.2	45. 17.	0.	20.5 107.0	35. 16.2	-5.	20.0 104.0	40. 0.0	0.	20.0 100.0	40. 0.0	0.							
925122	18.4 109.0 40	18.3 108.8	40. 13.	0.	19.9 104.8	30. 14.0	-5.	20.0 104.0	40. 0.0	0.	20.0 100.0	40. 0.0	0.							
925182	18.3 108.3 40	18.8 107.8	40. 41.	0.	19.0 103.0	30. 10.0	0.	19.0 101.0	40. 0.0	0.	19.0 99.0	40. 0.0	0.							
926002	18.0 107.5 40	18.3 107.4	40. 19.	0.	19.0 100.0	30. 6.0	0.	19.0 98.0	40. 0.0	0.	19.0 96.0	40. 0.0	0.							
926062	17.8 106.8 40	18.3 106.6	40. 32.	0.	19.0 99.0	30. 0.0	0.	19.0 97.0	40. 0.0	0.	19.0 95.0	40. 0.0	0.							
926122	17.7 106.0 35	0.0 0.0	0. -0. 0.	0.	0.0 0.0	0.0 0.0	0.	0.0 0.0	0.0 0.0	0.	0.0 0.0	0.0 0.0	0.							

ALL FORECASTS									
WMNG	24-HR	48-HR	72-HR						
Avg Forecast Posit	32.	165.	231.	295.					
Avg Right Angle Error	16.	84.	134.	210.					
Avg Intensity Magnitude ErrRuk	0.	4.	6.	3.					
Avg Intensity Bias	0.	1.	2.	-1.					
Number of Forecasts	21	18	10	7					
	3	6	4						

TYPHOON LOLA

(September-October)

HGT/ SWATH			WARNING			24 HOUR FORECAST						48 HOUR FORECAST						12 HUUR FORECAST					
PUSIT	WIND	PUSIT	WIND	DELT	WIND	PUSIT	WIND	DELT	WIND	PUSIT	WIND	DELT	WIND	PUSIT	WIND	DELT	WIND	PUSIT	WIND	WST	WIND		
920122	7.0	146.7	15	0.0	0.0	-0.	0.	0.0	0.0	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.		
920123	8.5	146.4	15	0.0	0.0	-0.	0.	0.0	0.0	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.		
921006	9.2	146.5	15	0.0	0.0	-0.	0.	0.0	0.0	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.		
921062	9.0	146.0	15	0.0	0.0	-0.	0.	0.0	0.0	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.		
921122	10.0	145.3	15	0.0	0.0	-0.	0.	0.0	0.0	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.		
921182	10.1	144.6	15	0.0	0.0	-0.	0.	0.0	0.0	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.		
922002	10.3	143.7	15	0.0	0.0	-0.	0.	0.0	0.0	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.		
922122	10.2	142.0	15	0.0	0.0	-0.	0.	0.0	0.0	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.		
922182	10.1	140.9	15	0.0	0.0	-0.	0.	0.0	0.0	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.		
923002	11.0	139.9	20	0.0	0.0	-0.	0.	0.0	0.0	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.		
923062	11.4	138.4	20	0.0	0.0	-0.	0.	0.0	0.0	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.		
923122	11.7	137.8	20	0.0	0.0	-0.	0.	0.0	0.0	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.		
923182	11.9	136.7	20	0.0	0.0	-0.	0.	0.0	0.0	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.		
924002	12.1	135.6	20	0.0	0.0	-0.	0.	0.0	0.0	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.		
924062	12.2	134.6	20	0.0	0.0	-0.	0.	0.0	0.0	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.	0.0	0.0	-0.	0.		
924122	12.3	133.7	20	12.3	133.7	-20	0.	0.	13.4	124.9	35	112.0	5.	15.2	125.0	40	15.3	-5.	16.5	120.0	45	17.5	
924182	12.4	132.3	30	12.6	132.6	-30	21.	0.	13.4	124.8	40	120.0	10.	15.4	124.7	45	14.0	16.5	120.0	50	17.0	0.	
925002	12.6	131.0	30	12.8	131.1	-30.	35.	0.	14.0	120.0	40	105.0	5.	15.0	121.0	50	13.6	16.0	116.7	50	17.0	0.	
925062	12.2	129.8	30	12.2	129.4	-30.	0.	0.	13.2	125.0	45.	0.	0.	14.5	119.8	40.	102.	-10.	14.7	114.8	50	15.0	145.5
925122	12.2	128.8	30	12.2	128.9	-30.	6.	0.	13.0	125.0	40.	21.	-5.	14.0	121.2	50.	50.	-15.	14.6	117.2	45	14.8	-15.
925182	12.1	127.7	30	12.2	127.7	-30.	6.	0.	12.7	125.0	35.	30.	-10.	13.0	119.7	40.	7.	30.	14.9	116.0	50	15.0	145.5
926002	12.0	126.8	35	12.2	126.7	-35.	6.	0.	13.1	122.0	40.	22.	-10.	14.3	118.0	50.	48.	-5.	14.6	114.5	60	24.	-5.
926062	12.3	125.0	40	12.4	125.0	-40.	6.	0.	13.5	121.0	45.	29.	-5.	14.0	117.0	60.	51.	5.	15.7	113.8	70.	18.	0.
926122	12.0	124.7	45	12.7	124.6	-45.	8.	0.	13.7	120.0	45.	30.	-5.	15.3	116.2	60.	40.	0.	17.6	112.8	70.	16.	0.
926182	13.2	123.0	45	13.4	123.4	-45.	17.	0.	14.7	119.3	50.	0.	0.	16.5	115.5	60.	31.	0.	19.1	112.1	70.	130.	0.
927002	13.0	122.5	50	13.6	122.4	-50.	13.	0.	15.1	114.0	65.	0.	10.	17.1	114.4	70.	40.	10.	20.1	111.7	80.	173.	10.
927062	13.0	121.4	50	13.6	121.5	-50.	13.	0.	14.9	117.6	65.	30.	10.	17.2	114.3	70.	26.	10.	20.1	111.7	80.	152.	0.
927122	14.3	120.4	50	14.1	120.4	-50.	12.	0.	15.6	116.5	70.	0.	10.	17.7	113.5	70.	42.	5.	20.3	111.1	80.	131.	5.
927182	14.7	119.3	50	14.5	119.0	-50.	21.	5.	16.4	114.9	70.	0.	10.	17.2	112.1	70.	13.	5.	22.2	111.2	80.	225.	-15.
928002	15.1	118.2	55	15.0	117.9	-55.	18.	0.	16.4	114.0	70.	22.	5.	19.0	112.2	70.	101.	5.	21.9	111.0	90.	143.	-10.
928062	15.0	117.2	55	15.6	117.1	-55.	13.	0.	17.4	114.0	70.	30.	5.	19.7	111.7	70.	130.	0.	22.7	110.8	90.	198.	-30.
928122	15.0	116.5	60	15.9	116.4	-60.	6.	0.	18.2	113.0	75.	7.	5.	20.8	111.9	80.	157.	5.	20.0	0.0	0.0	0.	-0.
928182	16.3	115.0	65	16.4	115.4	-65.	6.	0.	18.7	113.2	75.	9.	5.	21.6	111.9	80.	185.	0.	20.0	0.0	0.0	0.	-0.
929002	16.6	114.9	65	16.6	114.8	-65.	8.	0.	18.3	111.1	75.	11.	5.	19.0	107.0	80.	266.	-5.	20.0	0.0	0.0	0.	-0.
929062	16.8	114.1	65	16.7	114.4	-65.	18.	5.	17.7	111.1	80.	5.	51.	18.7	107.0	80.	191.	5.	18.8	103.7	90.	323.	-20.
929122	17.0	113.5	70	17.2	113.7	-75.	17.	5.	18.7	111.0	85.	7.	18.	19.6	107.3	80.	180.	5.	20.0	0.0	0.0	0.	-0.
929182	17.2	113.2	70	17.2	112.6	-75.	34.	5.	18.1	104.0	75.	17.	2.	19.6	105.4	80.	280.	5.	20.0	0.0	0.0	0.	-0.
930002	17.0	112.8	70	17.2	112.6	-75.	17.	5.	17.8	110.7	70.	8.	0.	19.4	108.0	80.	150.	5.	20.0	0.0	0.0	0.	-0.
930062	17.1	112.6	75	17.6	112.4	-75.	13.	0.	18.5	110.4	85.	6.	6.	19.0	107.0	80.	141.	5.	20.0	0.0	0.0	0.	-0.
930122	18.2	112.3	75	18.3	112.7	-75.	8.	0.	19.5	110.4	85.	13.	5.	21.6	107.9	80.	29.	20.	20.0	0.0	0.	0.	-0.
930182	18.5	112.0	75	18.6	112.0	-75.	6.	0.	20.7	110.8	85.	6.	6.	21.7	108.0	80.	30.	15.	20.0	0.0	0.0	0.	-0.
1001002	18.7	111.7	70	18.9	111.6	-70.	6.	0.	20.5	110.4	85.	45.	5.	20.0	0.0	0.	0.	0.	20.0	0.0	0.0	0.	
1001062	19.1	111.1	70	19.2	111.7	-70.	13.	0.	21.0	109.4	80.	22.	5.	20.0	0.0	0.	0.	0.	20.0	0.0	0.0	0.	
1001122	19.7	110.5	60	19.7	110.4	-65.	6.	5.	21.4	104.3	50.	5.	5.	20.0	0.0	0.	0.	0.	20.0	0.0	0.0	0.	
1001182	20.1	110.0	60	20.0	110.0	-65.	8.	5.	21.8	107.7	45.	21.	5.	20.0	0.0	0.	0.	0.	20.0	0.0	0.0	0.	
1002002	20.4	109.6	60	20.2	109.6	-60.	12.	0.	20.0	0.0	0.	0.	0.	20.0	0.	0.	0.	0.	20.0	0.0	0.0	0.	
1002062	20.7	109.0	50	20.7	109.2	-55.	16.	5.	20.0	0.0	0.	0.	0.	20.0	0.	0.	0.	0.	20.0	0.0	0.0	0.	
1002122	21.3	108.3	50	21.6	108.4	-50.	19.	5.	20.0	0.0	0.	0.	0.	20.0	0.	0.	0.	0.	20.0	0.0	0.0	0.	
1002182	21.5	107.5	40	21.7	107.7	-40.	21.	5.	20.0	0.0	0.	0.	0.	20.0	0.	0.	0.	0.	20.0	0.0	0.0	0.	

ALL FORECASTS

**TYPHOONS WHILE OVER 55 KTS**

	WIND	24-HR	48-HR	72-HR		WIND	24-HR	48-HR	72-HR
Avg Forecast Posit Error	13.	54.	112.	134.		13.	49.	112.	134.
Avg Height Angle Error	9.	40.	79.	88.		4.	36.	79.	88.
Avg Intensity Magnitude Errorm	1.	6.	6.	4.		2.	5.	6.	9.
Avg Intensity Bias	1.	3.	2.	-6.		0.	3.	2.	-6.
Number of Forecasts	34	30	26	17		28	28	20	17

## TYPHOON MAMIE

(September-October)

BEST TRACK			WARNING			24 HOUR FORECAST						48 HOUR FORECAST						12 HOUR FORECAST				
POSIT	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DSI	IND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	
929002	19.1 154.2	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.	0.0	0.	0.	
929062	19.6 153.9	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.	0.0	0.	0.	
929122	19.9 153.3	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.	0.0	0.	0.	
929182	19.6 152.8	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.	0.0	0.	0.	
930002	19.4 152.6	30	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.	0.0	0.	0.	
930062	19.2 153.3	35	19.3 152.0	34	51.	-5.	19.4 150.9	45.	185.	0.	20.6 147.7	50.	341.	-5.	21.8 145.5	55.	647.	-15.	21.8 145.5	55.	647.	-15.
930122	20.0 153.2	35	19.5 153.0	35	43.	0.	19.6 152.1	20.	229.	0.	20.0 149.6	60.	413.	0.	20.6 147.4	65.	758.	-15.	20.7 147.3	65.	932.	0.
930182	20.9 152.9	35	19.6 152.0	35	74.	0.	19.7 151.7	20.	271.	0.	20.1 149.5	60.	474.	-5.	20.7 147.3	65.	932.	0.	20.6 148.6	65.	661.	5.
1001002	21.0 152.8	40	21.1 153.1	35	34.	-5.	23.7 151.9	20.	117.	0.	24.3 150.5	50.	162.	-10.	24.6 148.6	65.	661.	5.	24.6 148.6	65.	661.	5.
1001602	22.4 152.3	45	22.4 152.3	35.	0.	-10.	26.0 150.7	30.	301.	-5.	26.3 149.4	55.	139.	-15.	32.4 150.4	60.	614.	5.	32.4 150.4	60.	614.	5.
1001122	23.4 151.5	50	23.5 151.9	40.	23.	-10.	26.9 150.2	30.	5.	-10.	30.0 149.2	60.	234.	-10.	33.3 151.3	60.	722.	15.	33.3 151.3	60.	722.	15.
1001182	24.1 150.7	50	24.3 150.7	45.	12.	-5.	27.5 148.1	60.	120.	-5.	31.5 148.6	60.	412.	-5.	0.0	0.	0.	0.	0.0	0.	0.	0.
1002002	24.9 150.2	50	24.7 150.0	30.	16.	0.	27.0 147.8	60.	188.	-10.	31.9 148.4	60.	573.	5.	0.0	0.	0.	0.	0.0	0.	0.	0.
1002602	25.9 150.0	55	25.8 149.4	20.	12.	-5.	29.2 148.8	60.	169.	-10.	32.5 151.1	60.	584.	5.	0.0	0.	0.	0.	0.0	0.	0.	0.
1002122	26.9 150.1	60	26.1 150.3	20.	12.	-10.	30.8 151.8	60.	100.	-10.	34.4 155.4	60.	931.	15.	0.0	0.	0.	0.	0.0	0.	0.	0.
1002182	28.0 150.3	65	27.0 150.7	20.	24.	-15.	31.7 152.8	60.	214.	-5.	34.0 155.4	60.	0.0	0.	0.0	0.	0.	0.	0.0	0.	0.	0.
1003002	29.0 150.0	70	28.7 150.8	30.	18.	-10.	32.4 153.4	60.	328.	0.	36.0 154.0	60.	0.0	0.	0.0	0.	0.	0.	0.0	0.	0.	0.
1003602	30.5 151.7	70	30.1 151.6	10.	24.	0.	34.5 156.0	60.	32d.	5.	36.0 156.0	60.	0.0	0.	0.0	0.	0.	0.	0.0	0.	0.	0.
1003122	32.3 152.9	70	31.7 153.0	05.	36.	-5.	36.4 161.0	45.	254.	0.	36.0 156.0	60.	0.0	0.	0.0	0.	0.	0.	0.0	0.	0.	0.
1003182	34.7 155.1	65	34.7 155.0	05.	5.	0.	0.0	0.0	0.	-0.	0.	0.0	0.	0.	0.	0.	0.	0.	0.0	0.	0.	0.
1004002	36.6 157.7	60	36.4 157.0	00.	13.	0.	0.0	0.0	0.	-0.	0.	0.0	0.	0.	0.	0.	0.	0.0	0.	0.	0.	
1004602	36.7 149.4	55	38.6 160.2	25.	11.	0.	0.0	0.0	0.	-0.	0.	0.0	0.	0.	0.	0.	0.	0.0	0.	0.	0.	
1004122	40.8 163.2	45	40.2 163.1	40.	36.	-5.	0.0	0.0	0.	-0.	0.	0.0	0.	0.	0.	0.	0.	0.0	0.	0.	0.	

ALL FORECASTS  
WIND 24-HR 48-HR 72-HR  
AVG FORECAST POSIT FPROK 25. 182. 386. 722.  
AVG RIGHT ANGLE ERMOK 14. 68. 143. 371.  
AVG INTENSITY MAGNITUDE ERMOK 5. 4. 8. 8.  
AVG INTENSITY BIAS -5. -4. -3. 1.  
NUMBER OF FORECASTS 18. 14. 10. 6.

TYPHOONS WHILE OVER 35 KTS  
WIND 24-HR 48-HR 72-HR  
25. 182. 386. 722.  
14. 68. 143. 327.  
5. 4. 8. 8.  
0. -4. -3. 1.  
18. 14. 10. 6.

## TROPICAL STORM NINA

(October)

0000Z TRUCK		WARNING				24 HOUR FORECAST				48 HOUR FORECAST				72 HOUR FORECAST						
POSIT	VEL	POSIT	WIND	DST	INTEN	POSIT	WIND	DST	INTEN	POSIT	WIND	DST	INTEN	POSIT	WIND	DST	INTEN			
100000Z	140 141.0	20	0.0	0.0	0.	140 141.0	20	0.0	0.0	140 141.0	20	0.0	0.	140 141.0	20	0.0	0.			
100000Z	150 139.4	20	0.0	0.0	0.	150 139.4	20	0.0	0.0	150 139.4	20	0.0	0.	150 139.4	20	0.0	0.			
100012Z	150 137.7	20	0.0	0.0	0.	150 137.7	20	0.0	0.0	150 137.7	20	0.0	0.	150 137.7	20	0.0	0.			
100012Z	150 135.4	20	0.0	0.0	0.	150 135.4	20	0.0	0.0	150 135.4	20	0.0	0.	150 135.4	20	0.0	0.			
100012Z	150 134.0	20	0.0	0.0	0.	150 134.0	20	0.0	0.0	150 134.0	20	0.0	0.	150 134.0	20	0.0	0.			
100012Z	150 132.8	20	0.0	0.0	0.	150 132.8	20	0.0	0.0	150 132.8	20	0.0	0.	150 132.8	20	0.0	0.			
100012Z	150 131.6	20	0.0	0.0	0.	150 131.6	20	0.0	0.0	150 131.6	20	0.0	0.	150 131.6	20	0.0	0.			
100012Z	150 130.4	20	0.0	0.0	0.	150 130.4	20	0.0	0.0	150 130.4	20	0.0	0.	150 130.4	20	0.0	0.			
100000Z	150 129.1	30	15.2	129.1	30.	150 129.1	30	15.2	129.1	45	150 129.1	30	15.2	129.1	45	150 129.1	30	15.2		
100000Z	150 128.0	35	15.2	127.9	35.	150 128.0	35	15.2	127.9	45	150 128.0	35	15.2	127.9	45	150 128.0	35	15.2		
100012Z	145 126.9	40	15.2	127.0	40.	145 126.9	40	15.2	127.0	55	145 126.9	40	15.2	127.0	55	145 126.9	40	15.2		
100012Z	145 125.7	45	15.2	126.0	45.	145 125.7	45	15.2	126.0	55	145 125.7	45	15.2	126.0	55	145 125.7	45	15.2		
100012Z	145 124.7	45	14.8	124.7	45.	145 124.7	45	14.8	124.7	50	145 124.7	45	14.8	124.7	50	145 124.7	45	14.8		
100012Z	145 123.8	45	15.1	123.7	45.	145 123.8	45	15.1	123.7	55	145 123.8	45	15.1	123.7	55	145 123.8	45	15.1		
100012Z	150 122.7	50	15.3	122.8	50.	150 122.7	50	15.3	122.8	55	150 122.7	50	15.3	122.8	55	150 122.7	50	15.3		
100012Z	150 121.5	50	15.2	121.5	50.	150 121.5	50	15.2	121.5	55	150 121.5	50	15.2	121.5	55	150 121.5	50	15.2		
101000Z	140 120.7	45	14.7	120.7	45.	140 120.7	45	14.7	120.7	50	140 120.7	45	14.7	120.7	50	140 120.7	45	14.7		
101000Z	140 120.0	45	14.7	120.0	45.	140 120.0	45	14.7	120.0	50	140 120.0	45	14.7	120.0	50	140 120.0	45	14.7		
101012Z	140 119.3	50	14.5	119.3	50.	140 119.3	50	14.5	119.3	55	140 119.3	50	14.5	119.3	55	140 119.3	50	14.5		
101012Z	140 118.6	50	14.6	118.6	50.	140 118.6	50	14.6	118.6	55	140 118.6	50	14.6	118.6	55	140 118.6	50	14.6		
101100Z	150 117.9	55	14.8	117.9	55.	150 117.9	55	14.8	117.9	55	150 117.9	55	14.8	117.9	55	150 117.9	55	14.8		
101100Z	150 117.4	60	15.4	117.4	60.	150 117.4	60	15.4	117.4	65	150 117.4	60	15.4	117.4	65	150 117.4	60	15.4		
101112Z	150 117.0	60	15.4	117.0	60.	150 117.0	60	15.4	117.0	65	150 117.0	60	15.4	117.0	65	150 117.0	60	15.4		
101112Z	150 116.6	60	15.5	116.6	60.	150 116.6	60	15.5	116.6	65	150 116.6	60	15.5	116.6	65	150 116.6	60	15.5		
101200Z	150 116.4	60	15.5	116.4	60.	150 116.4	60	15.5	116.4	65	150 116.4	60	15.5	116.4	65	150 116.4	60	15.5		
101200Z	150 116.4	55	15.3	115.0	55.	150 116.4	55	15.3	115.0	50	150 116.4	55	15.3	115.0	50	150 116.4	55	15.3		
101212Z	150 116.4	55	15.3	115.0	55.	150 116.4	55	15.3	115.0	50	150 116.4	55	15.3	115.0	50	150 116.4	55	15.3		
101212Z	150 116.4	55	15.3	115.0	55.	150 116.4	55	15.3	115.0	50	150 116.4	55	15.3	115.0	50	150 116.4	55	15.3		
101300Z	150 116.4	55	15.5	116.0	55.	150 116.4	55	15.5	116.0	50	150 116.4	55	15.5	116.0	50	150 116.4	55	15.5		
101300Z	150 116.4	55	15.5	116.0	55.	150 116.4	55	15.5	116.0	50	150 116.4	55	15.5	116.0	50	150 116.4	55	15.5		
101312Z	150 116.4	55	15.5	116.0	55.	150 116.4	55	15.5	116.0	50	150 116.4	55	15.5	116.0	50	150 116.4	55	15.5		
101312Z	150 115.5	55	15.5	115.7	55.	150 115.5	55	15.5	115.7	50	150 115.5	55	15.5	115.7	50	150 115.5	55	15.5		
101400Z	150 115.3	55	16.1	115.0	55.	150 115.3	55	16.1	115.0	50	150 115.3	55	16.1	115.0	50	150 115.3	55	16.1		
101400Z	150 115.2	55	16.5	114.5	55.	150 115.2	55	16.5	114.5	50	150 115.2	55	16.5	114.5	50	150 115.2	55	16.5		
101412Z	150 115.0	50	17.7	115.2	50.	150 115.0	50	17.7	115.2	45	150 115.0	50	17.7	115.2	45	150 115.0	50	17.7		
101412Z	150 114.1	50	18.1	114.8	45.	150 114.1	50	18.1	114.8	40	150 114.1	50	18.1	114.8	40	150 114.1	50	18.1		
101500Z	150 113.3	50	18.2	113.1	50.	150 113.3	50	18.2	113.1	45	150 113.3	50	18.2	113.1	45	150 113.3	50	18.2		
101500Z	150 112.5	50	18.6	112.1	50.	150 112.5	50	18.6	112.1	45	150 112.5	50	18.6	112.1	45	150 112.5	50	18.6		
101512Z	150 112.2	45	19.1	111.4	45.	150 112.2	45	19.1	111.4	40	150 112.2	45	19.1	111.4	40	150 112.2	45	19.1		
101512Z	150 112.1	45	19.4	111.6	45.	150 112.1	45	19.4	111.6	40	150 112.1	45	19.4	111.6	40	150 112.1	45	19.4		
101500Z	200 112.2	40	20.3	112.2	35.	101500Z	200 112.2	40	20.3	112.2	35.	101500Z	200 112.2	40	20.3	112.2	35.	101500Z	200 112.2	40
101500Z	210 112.6	35	21.5	112.6	35.	101500Z	210 112.6	35	21.5	112.6	30	101500Z	210 112.6	35	21.5	112.6	30	101500Z	210 112.6	35
101512Z	210 113.0	30	21.7	113.0	35.	101512Z	210 113.0	30	21.7	113.0	30	101512Z	210 113.0	30	21.7	113.0	30	101512Z	210 113.0	30

## ALL FORECASTS

WIND 24-HR 48-HR 72-HR

19° 120° 240° 360°

AVG HEIGHT ANGLE ERROR

16° 9° 212° 340°

AVG INTENSITY MAGITUDE ERROR

2° 5° 10° 10°

AVG INTENSITY BIAS

-0° 3° 5° 3°

NUMBER OF FORECASTS

35 31 27 22

12 9 4

## TYPHON ORA

(October)

HESI TRACK			WARNING			24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST		
			ERRHRS			ERRHRS			ERRHRS			ERRHRS		
100000Z	11.3	138.0	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100006Z	12.1	138.4	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100122	12.9	139.7	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100184	13.0	139.6	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100304	14.0	137.9	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100306Z	14.0	136.6	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100312Z	14.0	135.4	30	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100318Z	15.0	134.7	30	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
101000Z	17.0	133.9	35	17.0	133.9	35.	0.	0.	20.0	131.2	30.	24.0	130.1	35.
101006Z	17.0	132.9	40	17.0	133.0	40.	0.	0.	21.0	130.0	30.	24.0	129.0	35.
101122	17.0	131.5	40	18.0	132.1	40.	0.	0.	22.0	129.0	30.	25.0	128.0	35.
101184	18.0	130.5	45	18.0	130.3	45.	21.	-5.	21.0	128.4	30.	24.0	122.1	30.
101100Z	19.0	129.6	50	19.0	129.3	50.	20.	-10.	22.0	125.4	30.	24.0	120.9	30.
101106Z	20.0	128.7	50	20.0	128.0	50.	0.	0.	22.0	125.0	30.	24.0	121.3	30.
101112Z	20.0	127.4	55	21.0	127.7	50.	0.	-5.	23.0	123.1	30.	25.0	121.7	35.
101118Z	21.0	125.8	60	21.0	125.5	60.	12.	-6.	22.0	120.0	30.	25.0	120.7	35.
101200Z	21.0	124.5	65	22.0	124.2	60.	20.	-3.	23.0	118.0	30.	25.0	113.0	30.
101206Z	22.0	123.0	70	22.0	123.3	65.	13.	-5.	23.0	118.0	30.	25.0	113.0	30.
101212Z	22.0	122.7	70	22.0	122.0	70.	24.	0.	23.0	118.0	30.	25.0	113.0	30.
101218Z	22.0	122.6	75	22.0	122.3	70.	36.	-5.	22.0	119.0	30.	24.0	114.0	30.
101300Z	23.0	122.7	70	23.0	123.0	70.	1.	-10.	26.0	125.0	30.	28.0	128.9	35.
101306Z	23.0	122.9	75	23.0	122.7	70.	12.	-5.	27.0	124.3	35.	30.	120.0	30.
101312Z	24.0	123.1	80	24.0	123.1	80.	18.	0.	27.0	125.4	35.	24.	126.0	30.
101318Z	25.0	123.2	65	25.0	123.2	60.	0.	15.	28.0	124.0	30.	35.	124.0	30.
101400Z	26.0	123.8	55	26.0	123.1	60.	13.	5.	28.0	127.4	40.	35.	123.0	30.
101406Z	26.0	124.7	45	26.0	124.4	45.	17.	0.	0.0	0.0	0.	0.0	0.0	0.
101412Z	27.0	126.0	40	27.0	126.0	40.	12.	0.	0.0	0.0	0.	0.0	0.0	0.
101418Z	28.0	128.0	35	28.0	127.5	40.	29.	5.	0.0	0.0	0.	0.0	0.0	0.
101500Z	29.0	130.3	35	29.0	129.9	35.	20.	0.	0.0	0.0	0.	0.0	0.0	0.
ALL FORECASTS			WMOG 24-HR 48-HR 72-HR			TYPHON WHILE OVER 35 KTS			WMOG 24-HR 48-HR 72-HR			WMOG 24-HR 48-HR 72-HR		
Avg Forecast Posit Error	19.0	124.0	31.0	40.0	40.0	40.0	40.0	40.0	19.0	124.0	31.0	40.0	40.0	40.0
Avg Right Angle Error	14.0	99.0	239.0	391.0	391.0	391.0	391.0	391.0	14.0	94.0	239.0	391.0	391.0	391.0
Avg Intensity Magnitude Error	4.0	15.0	19.0	18.0	18.0	18.0	18.0	18.0	4.0	15.0	19.0	18.0	18.0	18.0
Avg Intensity Bias	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	-1.0
Number of Forecasts	21	17	11	6	6	6	6	6	21	17	11	6	6	6
	9	5	0											

## TROPICAL DEPRESSION 26

(October)

HESI TRACK			WARNING			24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST		
			ERRHRS			ERRHRS			ERRHRS			ERRHRS		
100018Z	19.0	163.7	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100000Z	19.0	163.0	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100006Z	20.0	162.6	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100122	21.0	162.3	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100184	21.0	162.0	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100100Z	21.0	161.6	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100106Z	22.0	161.2	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100122	22.0	160.7	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100138Z	22.0	159.9	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.0	0.0	0.
100140Z	22.0	158.8	25	22.0	158.0	25.	25.	0.	22.0	154.6	35.	114.	5.	0.
100146Z	22.0	157.6	25	22.0	159.0	25.	78.	0.	22.0	156.5	35.	302.	5.	0.
100152Z	22.0	156.1	25	22.0	157.8	25.	94.	0.	22.0	154.9	35.	298.	10.	0.
100158Z	22.0	154.4	25	22.0	155.1	25.	45.	0.	23.0	151.2	35.	154.	15.	0.
100200Z	23.0	152.6	30	23.0	152.5	30.	8.	0.	0.0	0.	0.	0.0	0.0	0.
101206Z	23.0	151.1	30	24.0	151.0	30.	25.	0.	0.0	0.	0.	0.0	0.0	0.
101212Z	24.0	149.8	25	24.0	149.8	25.	6.	0.	0.0	0.	0.	0.0	0.0	0.
101218Z	24.0	148.7	20	0.0	0.0	0.	-0.	0.	0.0	0.	0.	0.0	0.0	0.
ALL FORECASTS			WMOG 24-HR 48-HR 72-HR			WMOG 24-HR 48-HR 72-HR			WMOG 24-HR 48-HR 72-HR			WMOG 24-HR 48-HR 72-HR		
Avg Forecast Posit Error	40.0	218.0	0.	0.	0.	0.	0.	0.	40.0	218.0	0.	0.	0.	0.
Avg Right Angle Error	10.0	22.0	0.	0.	0.	0.	0.	0.	10.0	22.0	0.	0.	0.	0.
Avg Intensity Magnitude Error	0.0	9.0	0.	0.	0.	0.	0.	0.	0.0	9.0	0.	0.	0.	0.
Avg Intensity Bias	0.0	9.0	0.	0.	0.	0.	0.	0.	0.0	9.0	0.	0.	0.	0.
Number of Forecasts	7	4	0	0	0	0	0	0	0	0	0	0	0	0

## TROPICAL DEPRESSION 27

(October)

BEST TRACK	WARNING ERRORS				24 HOUR FORECAST ERRORS				48 HOUR FORECAST ERRORS				72 HOUR FORECAST					
	POSIT	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND
101000Z	9.0 153.4	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101005Z	8.0 152.7	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101012Z	8.4 151.4	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101018Z	6.0 150.9	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101002	7.3 149.4	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101006Z	7.5 149.0	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101012Z	8.2 147.9	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101018Z	8.0 146.8	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101002	8.7 145.7	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101006Z	9.0 144.6	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101012Z	9.0 142.6	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101018Z	9.7 140.7	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101002	10.0 139.1	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101006Z	10.4 137.7	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101012Z	11.0 136.4	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101018Z	11.3 135.3	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101002	12.1 134.5	20	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101006Z	12.0 133.5	20	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101012Z	13.2 132.6	20	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101018Z	13.7 131.8	20	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101002	14.1 131.1	20	14.3 131.0	20	13.0	0.	16.5 127.8	30.	137.8	30.	137.1	10.	0.0	0.0 0.0	0. 0.	-0.	0.	
101006Z	14.6 130.4	20	14.8 130.7	20	17.0	0.	17.1 127.0	30.	127.0	30.	127.0	15.	0.0	0.0 0.0	0. 0.	-0.	0.	
101012Z	15.0 130.2	20	15.3 129.3	20	55.0	0.	17.5 126.5	30.	126.5	30.	126.5	15.	0.0	0.0 0.0	0. 0.	-0.	0.	
101018Z	15.5 130.1	20	15.9 128.7	20	84.0	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101002	15.9 130.1	20	16.3 129.4	20	47.0	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101006Z	16.3 130.1	15	16.5 130.0	15	13.0	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.
101012Z	16.5 130.0	15	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.	0.0 0.0	0. 0.	-0.	0.

## ALL FORECASTS

WNG 24-HR 48-HR 72-HR

Avg Forecast Posit Err	38.	175.	0.	0.
Avg Right Angle Err	30.	168.	0.	0.
Avg Intensity Magnitude Err	0.	13.	0.	0.
Avg Intensity Bias	0.	13.	0.	0.
Number of Forecasts	6	3	0	0

## TYPHOON PHYLIS

(October) LINE FOR 33% REDUCTION

BEST TRACK	WARNING						24 HOUR FORECAST						48 HOUR FORECAST						72 HOUR FORECAST					
	POSIT	WIND	PCST	WIND	DST WIND	POSIT	INT	DSI	IND	POSIT	WIND	DST WIND	POSIT	WIND	DST WIND	POSIT	WIND	DST WIND	POSIT	WIND	DST WIND	POSIT	WIND	DST WIND
101312Z	7.8 165.5	15	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	-0.	0.	0.	0.
101318Z	8.6 165.0	15	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	-0.	0.	0.	0.
101400Z	9.5 164.5	15	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	-0.	0.	0.	0.
101412Z	10.5 164.1	15	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	-0.	0.	0.	0.
101418Z	11.0 163.7	15	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	-0.	0.	0.	0.
101500Z	12.0 163.2	15	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	-0.	0.	0.	0.
101506Z	13.0 162.6	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	-0.	0.	0.	0.
101512Z	14.0 162.2	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	-0.	0.	0.	0.
101518Z	14.5 161.6	25	14.7 161.5	25	13.0	-0.	0.	17.2	158.6	30	9.5	-10.	14.8	154.5	40	15.7	-15.	19.8	150.5	45	27.7	-45.	0.	0.
101600Z	15.0 161.2	25	14.9 161.1	25	12.0	-0.	0.	17.1	158.3	30	9.0	-6.2	15.6	154.9	40	8.7	-25.	19.8	150.5	45	28.7	-45.	0.	0.
101606Z	15.6 160.7	30	15.6 160.6	30	10.0	-0.	0.	17.5	159.2	35	4.0	-15.	19.0	154.8	40	4.7	-30.	20.2	150.7	45	28.5	-50.	0.	0.
101612Z	16.0 160.2	40	16.2 160.2	40	12.0	-0.	0.	18.3	157.9	50	4.0	-5.5	20.1	154.6	55	4.1	-30.	20.6	150.3	60	31.2	-35.	0.	0.
101618Z	16.4 159.1	45	16.6 159.2	45	6.0	-0.	0.	17.5	156.5	50	9.0	-5.5	19.0	153.0	55	17.2	-35.	19.1	148.7	60	44.8	-35.	0.	0.
101700Z	16.9 158.5	50	16.8 158.6	50	6.0	-0.	0.	17.0	156.0	60	10.4	-10.	19.0	152.8	65	23.5	-30.	19.6	148.6	70	44.1	-20.	0.	0.
101706Z	17.5 157.9	55	17.3 157.9	55	12.0	-0.	0.	18.0	155.5	65	9.0	-20.	20.1	152.0	65	24.5	-30.	20.7	147.8	70	43.7	-15.	0.	0.
101712Z	18.2 157.2	55	18.0 156.8	55	26.0	-0.	0.	19.7	153.6	65	11.9	-25.	20.6	149.5	65	36.5	-30.	20.7	145.2	70	56.9	-10.	0.	0.
101718Z	19.1 156.4	65	18.8 156.3	65	19.0	-0.	0.	20.5	152.4	60	17.2	-10.	20.6	148.2	80	33.2	-15.	20.6	143.9	80	63.9	0.	0.	0.
101724Z	19.6 155.6	70	19.7 155.6	70	6.0	-0.	0.	21.0	152.2	60	18.1	-15.	21.9	147.8	85	41.2	-5.	22.0	143.2	85	63.7	5.	0.	0.
101800Z	20.3 155.3	95	20.3 155.3	95	0.0	-0.	0.	23.0	154.9	95	6.0	-6.	26.6	156.9	95	17.6	-10.	29.3	161.2	85	40.6	10.	0.	0.
101812Z	20.9 155.3	90	21.1 155.3	90	12.0	-0.	0.	24.7	155.4	95	9.0	-5.	28.0	159.6	95	32.7	5.	30.4	165.5	75	55.4	5.	0.	0.
101818Z	21.5 155.3	90	21.6 155.3	90	6.0	-0.	0.	25.0	156.0	90	9.0	-5.	28.0	159.9	90	34.3	0.	30.5	166.0	70	45.2	5.	0.	0.
101824Z	22.1 155.4	95	22.1 155.4	95	0.0	-0.	0.	25.1	156.1	85	11.9	-5.	27.0	160.5	70	37.3	-10.	29.4	166.6	50	37.5	-10.	0.	0.
101906Z	22.6 155.5	95	22.7 155.5	95	6.0	-0.	0.	25.5	157.0	85	14.6	-6.	28.0	160.9	70	38.5	-5.	0.0	0.0	0.	-0.	0.	0.	0.
101912Z	23.1 155.5	95	23.1 155.7	95	11.0	-0.	0.	25.7	157.3	85	16.0	-5.	28.2	161.2	70	33.5	0.	0.0	0.0	0.	-0.	0.	0.	0.
101918Z	23.6 155.3	95	23.7 155.9	95	33.0	-0.	0.	26.4	158.1	95	22.0	-5.	28.7	163.0	65	32.4	0.	0.0	0.0	0.	-0.	0.	0.	0.
102000Z	24.1 154.9	90	24.3 155.5	90	35.0	-0.	0.	27.6	156.6	95	15.7	-5.	29.0	161.2	50	18.9	-10.	0.0	0.0	0.0	0.	-0.	0.	0.
102006Z	24.6 154.5	85	24.0 154.2	85	5.0	-0.	0.	27.6	152.9	75	4.0	-0.	31.0	157.4	50	42.2	0.	0.0	0.0	0.	-0.	0.	0.	0.
102012Z	25.4 154.2	80	25.5 154.2	80	6.0	-0.	0.	29.3	154.4	70	2.7	-0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.	0.
102018Z	25.1 153.9	80	26.0 154.0	80	8.0	-0.	0.	29.9	154.4	65	15.4	-0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.	0.
102024Z	27.1 153.5	80	27.0 153.5	80	6.0	-0.	0.	31.0	154.8	60	3.0	-0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.	0.
102106Z	28.0 153.6	75	28.4 152.6	75	5.0	-0.	0.	33.9	154.8	55	4.6	-5.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.	0.
102112Z	29.2 154.9	70	28.8 153.8	70	62.0	-0.	0.	0.0	0.0	0.	0.	-0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.	0.
102118Z	30.7 157.2	65	29.6 155.8	65	9.0	-0.	0.	0.0	0.0	0.	0.	-0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.	0.
102200Z	32.9 160.5	60	31.4 158.8	60	12.0	-0.	0.	0.0	0.0	0.	0.	-0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.	0.
102206Z	35.4 164.0	50	35.5 164.1	50	8.0	-0.	0.	0.0	0.0	0.	0.	-0.	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	-0.	0.	0.	0.

## ALL FORECASTS

WNG	24-HR	48-HR	72-HR
22.	132.	263.	436.
13.	86.	198.	377.
0.	-6.	-14.	-18.
28	24	20	15

## TYPHOONS WHILE OVER 35 KTS

WNG	24-HR	48-HR	72-HR
24.	132.	263.	436.
14.	86.	198.	377.
0.	-7.	-16.	-21.
25	24	40	15

## SUPER TYPHOON RITA

(October)

BEST TRACK			WARNING			24 HOUR FORECAST						48 HOUR FORECAST						72 HOUR FORECAST					
POSIT	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND		
101500Z	10° 195.4	15	0.0	0.0	0.	-20°	0.	0.0	0.0	10° 195.0	0.0	-20°	0.	10° 195.0	0.0	0.0	0.0	10° 195.0	0.0	-20°	0.		
101500Z	9.7 194.4	15	0.0	0.0	0.	-20°	0.	0.0	0.0	10° 194.0	0.0	-20°	0.	10° 194.0	0.0	0.0	0.0	10° 194.0	0.0	-20°	0.		
101512Z	9.5 193.4	15	0.0	0.0	0.	-20°	0.	0.0	0.0	10° 193.0	0.0	-20°	0.	10° 193.0	0.0	0.0	0.0	10° 193.0	0.0	-20°	0.		
101512Z	9.3 192.5	20	0.0	0.0	0.	-20°	0.	0.0	0.0	10° 192.0	0.0	-20°	0.	10° 192.0	0.0	0.0	0.0	10° 192.0	0.0	-20°	0.		
101500Z	9.1 191.6	20	0.0	0.0	0.	-20°	0.	0.0	0.0	10° 191.0	0.0	-20°	0.	10° 191.0	0.0	0.0	0.0	10° 191.0	0.0	-20°	0.		
101500Z	8.9 190.6	25	0.0	0.0	0.	-20°	0.	0.0	0.0	10° 190.0	0.0	-20°	0.	10° 190.0	0.0	0.0	0.0	10° 190.0	0.0	-20°	0.		
101512Z	8.6 179.7	25	0.0	0.0	0.	-20°	0.	0.0	0.0	10° 179.0	0.0	-20°	0.	10° 179.0	0.0	0.0	0.0	10° 179.0	0.0	-20°	0.		
101512Z	8.1 179.1	30	0.0	0.0	0.	-20°	0.	0.0	0.0	10° 178.0	0.0	-20°	0.	10° 178.0	0.0	0.0	0.0	10° 178.0	0.0	-20°	0.		
101500Z	8.1 178.5	30	0.0	0.0	0.	-20°	0.	0.0	0.0	10° 177.0	0.0	-20°	0.	10° 177.0	0.0	0.0	0.0	10° 177.0	0.0	-20°	0.		
101500Z	9.1 177.5	30	9.0 177.3	30	13°	0.	10° 175.8	40	9.0 171.5	50	10° 170.0	50	10° 165.7	50	10° 160.7	50	10° 156.7	50	10° 150.7	50	10° 146.7	50	
101512Z	10.0 176.5	30	10.1 176.4	30	19°	0.	11° 174.8	45	9.0 170.0	50	11° 167.0	50	11° 163.5	50	11° 159.0	50	11° 155.5	50	11° 151.5	50	11° 148.0	50	
101512Z	10.3 175.4	30	10.2 175.4	30	6°	0.	11° 171.4	45	4.5 167.0	50	11° 167.0	50	11° 163.5	50	11° 159.0	50	11° 155.5	50	11° 151.5	50	11° 148.0	50	
101500Z	10.5 174.3	30	10.4 174.4	30	30°	0.	11° 171.4	45	8.0 168.0	50	12° 167.0	50	12° 163.5	50	12° 159.0	50	12° 155.5	50	12° 151.5	50	12° 148.0	50	
101500Z	10.7 173.3	35	10.7 173.3	35	0°	0.	11° 164.5	50	3.0 164.0	50	12° 164.0	50	12° 159.5	50	12° 155.5	50	12° 151.5	50	12° 148.0	50	12° 144.0	50	
101512Z	10.7 172.2	35	10.9 172.3	35	13°	0.	11° 164.5	50	7.0 164.0	50	12° 164.0	50	12° 159.5	50	12° 155.5	50	12° 151.5	50	12° 148.0	50	12° 144.0	50	
101512Z	10.9 171.1	35	11.0 171.1	35	6°	0.	11° 164.5	50	5.5 164.0	50	12° 164.0	50	12° 159.5	50	12° 155.5	50	12° 151.5	50	12° 148.0	50	12° 144.0	50	
101500Z	11.1 170.0	40	11.0 170.0	40	6°	0.	11° 164.5	50	5.0 164.0	50	12° 164.0	50	12° 159.5	50	12° 155.5	50	12° 151.5	50	12° 148.0	50	12° 144.0	50	
101500Z	11.3 168.7	40	11.3 168.9	40	6°	0.	11° 164.5	50	9.0 164.0	50	12° 164.0	50	12° 159.5	50	12° 155.5	50	12° 151.5	50	12° 148.0	50	12° 144.0	50	
101512Z	11.3 167.3	45	11.2 167.4	45	4.0 167.0	50	12° 163.0	55	11.0 162.0	50	12° 162.0	50	12° 158.5	50	12° 154.5	50	12° 150.5	50	12° 148.0	50	12° 144.0	50	
101512Z	11.5 165.9	40	11.5 166.1	45	12°	-15°	12.3 161.5	55	11.0 161.5	55	12.8 160.0	55	12.4 156.0	55	12.0 152.0	55	11.6 149.0	55	11.2 146.0	55	10.8 143.0	55	
102000Z	11.6 164.5	75	11.7 164.4	70	13°	-5°	12.4 154.7	85	7.0 164.0	20°	12.4 153.3	85	12.0 150.0	20°	11.6 147.0	20°	11.2 144.0	20°	10.8 141.0	20°	10.4 138.0	20°	
102000Z	11.6 162.8	75	11.7 162.8	75	6°	0.	12.4 154.7	85	7.0 164.0	20°	12.4 153.3	85	12.0 150.0	20°	11.6 147.0	20°	11.2 144.0	20°	10.8 141.0	20°	10.4 138.0	20°	
102012Z	11.7 161.2	80	11.8 161.3	75	9°	-5°	12.4 155.2	85	9.0 164.0	20°	12.4 154.7	85	12.0 150.0	20°	11.6 147.2	20°	11.2 144.0	20°	10.8 141.0	20°	10.4 138.0	20°	
102012Z	11.5 159.5	90	11.6 159.4	80	8°	-10°	12.7 153.2	70	12.0 152.0	20°	12.4 152.0	70	12.0 149.0	20°	11.6 147.2	20°	11.2 144.0	20°	10.8 141.0	20°	10.4 138.0	20°	
102100Z	11.4 158.1	105	11.4 158.2	95	6°	-10°	11.7 152.5	115°	6.0 158.0	10°	11.4 157.0	115°	6.0 154.5	10°	11.1 152.5	115°	5.5 151.5	10°	10.8 148.0	10°	10.4 145.0	10°	
102100Z	11.3 156.7	105	11.4 156.8	100	8°	-5°	11.5 151.2	140°	7.0 156.0	10°	11.3 151.2	140°	7.0 153.5	10°	11.0 151.2	140°	6.5 151.0	10°	10.6 151.0	10°	10.2 148.0	10°	
102112Z	11.4 155.5	105	11.2 155.4	105	6°	0.	12.3 149.4	160°	8.0 154.0	10°	12.0 149.4	160°	8.0 151.5	10°	11.7 149.4	160°	7.5 147.0	10°	11.4 145.5	10°	11.0 143.0	10°	
102112Z	11.4 154.5	110	11.1 154.4	105	0°	-5°	12.4 149.0	165°	5.0 152.0	10°	12.1 149.0	165°	5.0 150.5	10°	11.8 149.0	165°	4.5 148.0	10°	11.5 146.0	10°	11.2 143.0	10°	
102200Z	11.2 153.5	115	11.1 153.4	110	13°	-5°	11.4 148.9	165°	2.0 150.0	10°	11.2 148.9	165°	2.0 148.5	10°	10.9 148.9	165°	1.5 147.0	10°	10.6 145.0	10°	10.3 142.0	10°	
102200Z	11.4 149.2	125	11.3 149.3	120	6°	-10°	12.1 147.9	165°	5.0 152.0	10°	12.0 147.9	165°	5.0 150.5	10°	11.7 147.9	165°	4.5 148.0	10°	11.4 146.0	10°	11.1 143.0	10°	
102212Z	11.6 150.0	130	11.7 150.3	130	19°	-10°	12.4 148.1	165°	18.0 150.0	10°	12.2 148.1	165°	18.0 148.0	10°	11.9 148.1	165°	17.5 146.0	10°	11.6 144.0	10°	11.3 141.0	10°	
102212Z	11.5 148.6	145	11.6 148.5	145	6°	-10°	12.2 148.1	165°	9.0 150.0	10°	12.0 148.1	165°	9.0 148.0	10°	11.7 148.1	165°	8.5 146.0	10°	11.4 144.0	10°	11.1 141.0	10°	
102300Z	11.7 147.1	150	11.9 147.1	140	12°	-10°	12.4 147.1	160°	12.0 147.0	10°	12.2 147.1	160°	12.0 146.0	10°	11.9 147.1	160°	11.5 145.0	10°	11.6 142.0	10°	11.3 139.0	10°	
102312Z	12.1 145.4	150	12.0 145.7	145	19°	-5°	12.4 145.7	165°	5.0 152.0	10°	12.0 145.7	165°	5.0 150.5	10°	11.7 145.7	165°	4.5 148.0	10°	11.4 145.0	10°	11.1 142.0	10°	
102312Z	12.0 143.6	145	12.3 143.7	140	19°	-5°	13.1 143.6	165°	8.0 152.0	10°	12.8 143.6	165°	8.0 150.5	10°	12.5 143.6	165°	7.5 148.0	10°	12.2 145.0	10°	11.9 142.0	10°	
102400Z	12.0 141.7	140	11.8 141.9	140	17°	0°	11.5 141.7	165°	1.0 148.0	10°	11.3 141.7	165°	1.0 146.0	10°	11.0 141.7	165°	0.5 144.0	10°	10.7 141.0	10°	10.4 138.0	10°	
102400Z	12.4 139.9	145	12.1 140.1	140	21°	-5°	12.0 139.9	165°	13.0 140.0	10°	11.8 139.9	165°	13.0 138.0	10°	11.5 139.9	165°	12.5 137.0	10°	11.2 135.0	10°	10.9 132.0	10°	
102412Z	12.6 137.1	145	12.6 137.6	140	13°	-5°	12.5 137.6	165°	1.0 148.0	10°	12.3 137.6	165°	1.0 146.0	10°	12.0 137.6	165°	0.5 144.0	10°	11.7 135.0	10°	11.4 132.0	10°	
102412Z	12.7 135.4	150	12.5 135.1	140	21°	-5°	12.8 135.1	165°	15.0 140.0	10°	12.6 135.1	165°	15.0 138.0	10°	12.3 135.1	165°	14.5 136.0	10°	11.9 133.0	10°	11.6 130.0	10°	
102500Z	12.9 131.1	155	12.9 131.0	145	6°	-10°	13.0 131.0	165°	1.0 148.0	10°	12.8 131.0	165°	1.0 146.0	10°	12.5 131.0	165°	0.5 144.0	10°	12.2 132.0	10°	11.9 130.0	10°	
102512Z	13.4 129.0	150	13.1 129.1	145	19°	-5°	13.4 129.1	160°	11.0 140.0	10°	13.2 129.1	160°	11.0 138.0	10°	12.9 129.1	160°	10.5 136.0	10°	12.6 134.0	10°	12.3 131.0	10°	
102512Z	13.7 126.9	145	13.6 126.7	140	13°	-5°	14.1 126.7	160°	11.0 140.0	10°	13.9 126.7	160°	11.0 138.0	10°	13.6 126.7	160°	10.5 135.0	10°	13.3 132.0	10°	13.0 129.0	10°	
102600Z	14.1 125.1	140	13.8 125.1	140	18°	0°	14.3 125.1	160°	9.0 140.0	10°	14.1 125.1	160°	9.0 138.0	10°	13.8 125.1	160°	8.5 136.0	10°	13.5 133.0	10°	13.2 130.0	10°	
102600Z	14.6																						

## TROPICAL STORM TESS

(November)

BEST TRACK				WARNING				24 HOUR FORECAST				48 HOUR FORECAST				72 HOUR FORECAST					
POSIT	WIND	POSIT	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND		
1031002	15.8 147.5	15	0.0 0.0	0.0 0.	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.		
1031022	15.9 146.8	15	0.0 0.0	0.0 0.	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.		
1031182	14.0 146.0	15	0.0 0.0	0.0 0.	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.		
1101002	14.0 145.6	20	0.0 0.0	0.0 0.	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.		
1101122	14.0 145.2	20	0.0 0.0	0.0 0.	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.		
1101182	14.0 144.9	25	0.0 0.0	0.0 0.	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.		
1101182	15.2 144.5	25	15.4 142.7	25	10.4 0.	0.	0.	15.0 140.7	40.0 28.0	5.0 17.3	138.2	50.0 49.7	0.0	19.8 135.5	50.0 72.5	0.0	19.2 138.7	50.0 438.0	0.0	19.2 138.7	50.0 324.0
1102002	15.9 144.2	30	15.5 144.2	30	24.0 0.	0.	0.	16.0 145.3	40.0 19.1	0.0	17.3 140.8	50.0 49.7	-5.0	21.1 143.0	50.0 203.	-5.0	23.8 143.8	50.0 324.0	0.0	23.8 143.8	50.0 324.0
1102122	17.0 144.6	30	17.4 144.1	30	31.0 0.	0.	0.	19.4 144.1	40.0 12.2	-5.0	22.0 144.2	50.0 17.4	-10.0	25.8 145.7	50.0 106.	-10.0	27.7 151.7	50.0 106.	-10.0	27.7 151.7	50.0 106.
1102182	18.0 145.0	30	18.6 145.0	30	12.0 0.	-5.	21.3 145.0	40.0 60.0	-10.0	24.0 148.0	50.0 24.0	-10.0	26.8 151.0	50.0 84.	-10.0	26.8 151.0	50.0 241.	-10.0	26.8 151.0	50.0 241.	
1103002	18.0 145.5	40	18.8 145.1	35	33.0 0.	-5.	21.0 145.1	45.0 21.2	-10.0	24.0 148.1	50.0 84.	-10.0	26.8 151.0	50.0 55.	-10.0	26.8 151.0	50.0 55.	-10.0	26.8 151.0	50.0 55.	
1103122	19.5 146.3	45	19.0 146.3	45	16.0 0.	0.	21.3 146.3	55.0 33.0	0.	24.0 148.3	50.0 15.0	0.	27.0 151.2	50.0 5.	0.	27.0 151.2	50.0 325.	0.	27.0 151.2	50.0 325.	
1104002	20.3 146.6	50	19.9 146.6	50	33.0 0.	0.	21.7 146.6	65.0 15.0	0.	24.0 150.5	70.0 305.	10.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	
1104002	21.2 146.5	55	21.3 146.4	55	18.0 0.	0.	25.0 146.4	65.0 38.0	5.0 30.0	152.0	70.0 47.	10.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	
1104002	22.1 146.9	55	22.0 147.9	55	56.0 0.	0.	26.1 148.9	65.0 42.0	5.0 30.0	153.2	70.0 98.	10.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	
1104122	23.1 147.3	60	23.0 147.0	60	55.0 0.	-5.	27.1 149.0	65.0 62.0	5.0 31.0	154.3	70.0 166.	15.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	
1104182	24.2 147.7	60	24.2 147.7	60	0.0 0.	0.	28.0 150.4	60.0 61.0	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	
1105002	25.0 148.1	60	25.4 148.4	60	16.0 0.	0.	29.3 151.7	60.0 68.0	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	
1105002	26.0 148.8	60	26.7 148.7	60	8.0 0.	0.	31.0 151.8	55.0 12.0	-5.0 0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	
1105122	28.1 149.9	60	27.9 149.2	60	39.0 0.	0.	31.7 153.0	55.0 21.0	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	
1105182	29.4 151.1	60	28.8 150.7	60	41.0 0.	0.	0.0 0.0	0.0 0.	-10.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	
1106002	30.7 152.2	60	30.3 152.4	55	28.0 0.	-5.	0.0 0.0	0.0 0.	-10.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	
1106002	31.9 153.9	60	32.3 154.4	55	35.0 0.	-5.	0.0 0.0	0.0 0.	-10.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	
1106122	33.1 156.9	55	33.5 157.1	50	26.0 0.	-5.	0.0 0.0	0.0 0.	-10.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	

## ALL FORECASTS

WHRG 24-HR 48-HR 72-HR

Avg Forecast Posit Error	29.	108.	194.	367.
Avg High Angle Error	21.	53.	127.	237.
Avg Intensity Magnitude Error	2.	4.	8.	4.
Avg Intensity Bias	-2.	-1.	1.	3.
Number of Forecasts	20	16	12	8

9 8 3

## TROPICAL DEPRESSION 32

(November)

BEST TRACK				WARNING				24 HOUR FORECAST				48 HOUR FORECAST				72 HOUR FORECAST				
POSIT	WIND	POSIT	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	
1115182	15.3 130.1	15	0.0 0.0	0.0 0.	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	
1116002	15.3 129.8	15	0.0 0.0	0.0 0.	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	
1116062	15.3 129.5	20	0.0 0.0	0.0 0.	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	
1116122	15.3 129.2	20	0.0 0.0	0.0 0.	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	
1116182	15.3 128.9	20	0.0 0.0	0.0 0.	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	0.0 0.0	0.0 0.	-0.	0.	
1117002	15.3 128.5	25	16.0 130.0	25	96.0 0.	0.	17.3 131.0	40.0 21.0	5.0 19.5	132.9	35.0 530.	10.0	21.4 138.2	35.0 973.	20.	21.4 138.2	35.0 973.	20.	21.4 138.2	35.0 973.
1117062	15.3 128.2	25	16.3 130.0	25	119.0 0.	0.	17.3 131.0	40.0 24.9	5.0 19.5	132.8	35.0 556.	15.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.
1117122	15.2 128.0	25	17.0 128.9	25	119.0 0.	0.	18.5 127.2	40.0 24.8	5.0 21.1	126.9	35.0 390.	15.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.
1117182	15.1 127.6	25	17.4 128.6	25	149.0 0.	0.	19.1 126.9	30.0 29.0	5.0 21.1	126.9	35.0 491.	15.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.
1118002	15.0 127.3	25	14.6 128.0	25	37.0 0.	0.	14.5 125.5	20.0 33.0	-5.0 14.0	123.5	15.0 38.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.
1118062	14.7 126.8	25	14.6 126.8	25	6.0 0.	0.	14.4 125.2	20.0 44.0	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.
1118122	14.4 126.5	25	14.6 126.8	25	21.0 0.	0.	14.3 124.6	20.0 48.0	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.
1118182	14.2 126.1	25	14.4 126.4	25	21.0 0.	0.	14.0 124.2	20.0 44.0	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.
1119002	13.9 125.7	25	14.3 125.8	25	25.0 0.	0.	13.8 123.4	40.0 25.0	5.0 0.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.
1119062	13.7 125.2	20	13.8 125.2	25	6.0 0.	0.	13.0 0.0	0.0 0.	-10.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.
1119122	13.5 124.6	20	13.5 124.6	25	6.0 0.	0.	12.5 0.0	0.0 0.	-10.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.
1119182	13.4 123.9	20	13.5 123.9	20	6.0 0.	0.	12.5 0.0	0.0 0.	-10.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.
1120002	13.4 123.3	15	0.0 0.0	0.0 0.	0.	0.	0.0 0.0	0.0 0.	-10.0	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0.	0.	0.0 0.0	0.0 0

## TYPHOON VIOLA

(November)

BEST TRACK			WARNING			24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST		
POSIT	WIND	POSIT	WIND	DST WIND	ERRMWS	POSIT	WIND	DST WIND	POSIT	WIND	DST WIND	POSIT	WIND	DST WIND
1110002	3.6 155.0	15	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°
111002	4.4 154.3	20	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°
1110122	5.6 153.3	29	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°
1110182	6.0 152.0	29	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°
1110182	6.8 151.8	25	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°
1110182	8.0 149.9	30	0.1 149.4	30.	6.°	0.0 10.7	147.4	4.0.°	0.0 12.3	140.3	5.0.°	0.0 12.8	155.1	6.0.° -15.°
111122	8.7 148.5	35	0.5 148.4	30.	21.°	-5.°	10.°	144.5	4.5.°	8.0.°	10.°	12.5	155.1	6.0.° -15.°
1111182	9.1 147.1	40	0.1 147.1	35.°	0.°	-5.°	11.5	141.9	5.5.°	13.°	12.5	137.2	5.5.°	14.3 153.7
1111182	9.4 145.0	40	0.5 145.7	40.	8.°	0.0	11.7	140.2	4.5.°	12.0	13.2	135.2	5.0.°	15.6 151.6
1111002	10.0 144.5	45	0.5 144.4	45.	42.°	0.°	11.7	134.2	0.0.°	7.0.°	10.°	13.0	132.0	0.0.° -10.°
1111002	10.9 143.1	45	10.7 143.0	45.	13.°	0.°	12.6	137.4	0.0.°	3.0.°	12.4	131.7	0.0.°	15.1 156.0
1111002	11.3 141.0	50	11.5 141.4	50.	26.°	0.°	13.1	135.6	0.0.°	10.0.°	14.0	129.7	0.0.°	15.4 153.7
1111002	11.7 140.4	50	11.7 140.4	50.	0.°	0.°	13.3	135.0	0.0.°	9.0.°	14.0	129.0	0.0.°	15.6 152.8
1111002	12.2 139.9	50	12.2 139.9	50.	6.°	0.°	13.8	133.1	0.0.°	19.0.°	15.0	127.2	7.0.°	16.1 151.2
1111002	12.9 138.0	55	12.5 137.9	50.	25.°	-5.°	14.4	132.3	0.0.°	25.0.°	15.5	126.1	7.0.°	16.2 150.5
1111002	13.0 137.3	60	13.7 136.8	50.	31.°	0.°	16.0	131.4	7.5.°	12.0.°	16.5	126.6	8.0.°	16.3 150.0
1111002	13.8 136.5	65	14.5 135.9	50.	54.°	-5.°	16.7	131.2	7.5.°	13.0.°	17.1	125.4	8.0.°	17.6 149.3
1111002	14.6 135.6	75	14.6 135.6	70.	8.°	-5.°	16.1	127.2	7.0.°	13.0.°	16.4	129.5	10.0.°	17.2 155.4
1111002	15.1 134.8	85	15.2 134.6	70.	13.°	-15.°	16.4	131.5	9.0.°	11.0.°	17.0	128.4	10.0.°	17.6 154.2
1111002	15.5 134.0	100	15.5 134.0	85.	0.°	-15.°	17.1	130.7	9.5.°	19.0.°	17.0	127.4	10.0.°	17.7 153.3
1111002	15.9 133.4	115	16.1 133.1	100.	21.°	-15.°	17.8	129.4	12.0.°	30.°	16.4	126.6	12.5.°	18.7 152.4
1111002	16.3 132.6	120	16.4 132.4	115.	13.°	-5.°	18.0	124.1	13.0.°	60.°	16.0	125.8	13.0.°	18.8 151.6
1111002	16.8 131.7	125	16.6 131.6	120.	13.°	-5.°	17.4	127.8	13.0.°	13.0.°	16.6	123.9	13.5.°	19.1 150.0
1111002	17.4 130.8	125	17.4 130.7	120.	13.°	-5.°	18.3	126.7	13.0.°	30.°	17.4	122.8	13.5.°	19.2 149.2
1111002	18.3 129.9	120	18.3 129.7	125.	11.°	0.°	19.5	125.8	13.0.°	22.0.°	19.1	122.5	13.0.°	19.6 148.2
1111002	19.0 129.1	115	19.1 129.3	115.	13.°	0.°	21.4	127.8	9.5.°	16.0.°	19.5	123.3	10.5.°	19.7 147.0
1111002	20.1 128.3	110	19.9 128.0	110.	13.°	0.°	22.6	126.4	9.0.°	10.0.°	20.0	120.0	9.0.°	20.2 146.6
1111002	21.0 128.5	100	21.2 128.4	105.	13.°	5.°	23.3	131.3	9.0.°	5.0.°	30.0	0.0.°	0.0.°	21.2 146.0
1111002	21.7 129.1	95	21.7 128.9	100.	11.°	5.°	24.3	131.5	9.0.°	13.0.°	40.0	0.0.°	0.0.°	21.7 145.0
1111002	22.7 130.0	80	22.3 129.7	95.	29.°	15.°	24.8	132.6	8.0.°	16.0.°	40.0	0.0.°	0.0.°	22.7 144.0
1111002	23.7 131.0	70	23.9 131.3	90.	20.°	20.°	0.0.°	0.0.°	0.°	0.0.°	0.0.°	0.0.°	0.0.°	23.7 143.0
1111002	24.6 131.9	60	24.7 132.7	75.	44.°	15.°	0.0.°	0.0.°	0.°	0.0.°	0.0.°	0.0.°	0.0.°	24.6 142.0
1111002	25.2 133.0	50	25.5 133.5	50.	24.°	0.°	0.0.°	0.0.°	0.°	0.0.°	0.0.°	0.0.°	0.0.°	25.2 141.0
1111002	25.4 135.9	40	25.4 135.0	40.	49.°	0.°	0.0.°	0.0.°	0.°	0.0.°	0.0.°	0.0.°	0.0.°	25.4 140.0

## ALL FORECASTS

WMNG 24-HR 48-HR 72-HR WMNG 24-HR 48-HR 72-HR

Avg Forecast Posit Error	19. 96.	269.	434.	19. 46.	284.	434.
Avg Right Angle Error	10. 51.	172.	338.	10. 51.	172.	338.
Avg Intensity Magnitude Errmws	5. 19.	33.	46.	5. 19.	33.	46.
Avg Intensity Bias	-1. 2.	0.	-14.	0. 2.	0.	-14.
Number of Forecasts	29	25	21	28	25	21

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## TROPICAL STORM WINNIE

(November)

BEST TRACK			WARNING			24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST		
POSIT	WIND	POSIT	WIND	DST WIND	ERRMWS	POSIT	WIND	DST WIND	POSIT	WIND	DST WIND	POSIT	WIND	DST WIND
1125122	9.4 147.7	20	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°
1125182	9.7 147.7	20	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°
1126002	10.0 147.8	20	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°
1126062	10.0 147.9	20	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°
1126122	10.0 148.3	20	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°
1126182	10.0 148.7	20	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°
1127002	10.9 149.2	25	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°	0.0 0.0	0.° -0.°	0.°
1127062	11.0 149.5	30	11.7 149.5	30.	6.°	0.0 12.5	147.2	45.°	21.°	141.8	13.0.°	14.0	144.9	55.°
1127122	12.0 149.0	30	12.0 149.1	30.	36.°	0.0 12.0	146.9	45.°	28.°	15.0	144.5	55.°	68.0	0.0.°
1127182	13.7 148.4	30	12.6 148.7	30.	68.°	0.0 13.4	146.0	45.°	30.°	14.0	144.0	55.°	85.1	5.0.°
1128002	14.7 147.8	35	14.9 147.7	35.	13.°	0.0 20.2	147.3	50.°	60.°	14.0	144.0	55.°	85.1	5.0.°
1128062	16.0 147.5	35	15.7 147.4	35.	19.°	0.0 19.4	147.1	50.°	100.°	0.0	0.0	0.0.°	0.0.°	0.0.°
1128122	17.7 146.8	40	16.8 147.3	40.	61.°	0.0 20.5	147.4	50.°	24.0	0.0	0.0	0.0.°	0.0.°	0.0.°
1128182	19.5 146.6	45	19.1 145.9	45.	37.°	0.0 24.7	147.5	50.°	240.°	0.0	0.0	0.0.°	0.0.°	0.0.°
1129002	20.7 146.2	55	21.2 146.3	55.	30.°	0.0 27.6	150.3	45.°	240.°	5.0	0.0	0.0.°	0.0.°	0.0.°
1129062	22.5 147.4	55	22.4 146.6	55.	45.°	0.0 0.0	0.0	0.°	0.0	0.0	0.0	0.0.°	0.0.°	0.0.°
1129122	24.3 149.0	55	24.0 148.2	50.	47.°	-5.°	0.0	0.0	0.°	0.0	0.0	0.0.°	0.0.°	0.0.°
1129182	26.4 151.7	50	26.5 151.5	50.	12.°	0.0	0.0	0.°	0.0	0.0	0.0	0.0.°	0.0.°	0.0.°
1130002	28.4 155.8	40	28.2 155.3	45.	29.°	0.0	0.0	0.°	0.0	0.0	0.0	0.0.°	0.0.°	0.0.°

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ALL FORECASTS

WMNG 24-HR 48-HR 72-HR

2. NORTH INDIAN OCEAN CYCLONE TRACK DATA

TC18-78

(MAY)

BEST TRACK			WARNING			24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST					
POSIT	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND
513022	10.5	88.9	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.	-0.	0.	0.0	0.0	0.
513082	10.6	99.1	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.	-0.	0.	0.0	0.0	0.
513142	11.1	89.2	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.	-0.	0.	0.0	0.0	0.
513202	11.4	89.4	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.	-0.	0.	0.0	0.0	0.
514022	11.6	89.5	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.	-0.	0.	0.0	0.0	0.
514082	12.0	89.6	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.	-0.	0.	0.0	0.0	0.
514142	12.3	89.6	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.	-0.	0.	0.0	0.0	0.
514202	12.5	89.7	30	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.	-0.	0.	0.0	0.0	0.
515022	12.7	89.8	30	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.	-0.	0.	0.0	0.0	0.
515082	13.2	90.1	30	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.	-0.	0.	0.0	0.0	0.
515142	14.1	90.1	35	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.	-0.	0.	0.0	0.0	0.
515202	14.9	90.0	35	15.7	92.6	35.	15.7	0.	17.7	93.4	40.	12.0	-5.	19.2	94.4	45.	78.
516022	16.9	89.9	35	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.
516082	16.8	90.2	40	16.5	90.0	35.	21.	-5.	18.7	91.1	40.	10.8	-21.	18.0	90.0	40.	0.
517042	17.7	90.6	40	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.	-0.	0.	0.0	0.0	0.
517082	18.4	91.3	45	18.4	91.4	35.	6.	-10.	21.0	94.4	50.	30.	10.	21.0	94.4	50.	0.
517102	18.5	92.1	50	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.	-0.	0.	0.0	0.0	0.
5171082	18.9	93.0	60	19.5	92.8	35.	38.	-25.	0.0	0.0	0.0	0.	-0.	0.	0.0	0.0	0.
517142	19.7	93.8	45	0.0	0.0	0.	-0.	0.	0.0	0.0	0.0	0.	-0.	0.	0.0	0.0	0.
517202	20.5	94.5	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.

ALL FORECASTS

WMNG	24-HR	48-HR	72-HR
Avg Forecast Posit Error	55.	88.	78.
Avg Height Angle Error	51.	41.	45.
Avg Intensity Magnitude Error	10.	12.	5.
Avg Intensity Bias	-10.	-5.	5.
Number of Forecasts	4	3	1

TC19-78

(OCTOBER)

BEST TRACK			WARNING			24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST					
POSIT	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND
1024022	8.5	96.9	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.
1024082	9.0	95.4	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.
1024142	10.7	93.8	20	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.
1024202	11.6	92.2	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.
1025022	12.0	91.0	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.
1025082	13.5	90.0	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.
1025142	14.2	89.1	30	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.
1025202	15.0	88.5	30	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.
1025022	15.0	87.9	35	15.7	87.3	35.	35.	0.	18.4	84.0	35.	19.3	-0.	0.0	0.	0.0	0.
1025082	16.5	87.4	35	16.7	87.7	35.	17.	0.	19.7	83.9	20.	23.7	-15.	0.0	0.	-0.	0.
1025142	17.2	87.1	35	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.
1026202	17.9	87.0	35	17.8	86.0	35.	57.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.
1027022	18.0	87.0	35	18.5	86.9	35.	29.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.
1027082	19.4	88.1	35	19.4	88.7	35.	34.	0.	21.1	93.4	20.	17.0	-5.	0.0	0.	0.0	0.
1027142	20.0	89.0	40	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.
1027202	20.8	89.8	40	21.0	90.6	40.	46.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.
1028022	21.8	90.3	35	22.2	90.4	25.	25.	-10.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.
1028082	22.7	90.7	25	0.0	0.0	0.	-0.	0.	0.0	0.0	0.	0.	-0.	0.	0.0	0.0	0.

ALL FORECASTS

WMNG	24-HR	48-HR	72-HR
Avg Forecast Posit Error	35.	203.	0.
Avg Height Angle Error	25.	183.	0.
Avg Intensity Magnitude Error	1.	7.	0.
Avg Intensity Bias	-1.	-7.	0.
Number of Forecasts	7	3	0

(NOVEMBER)

BEST TRACK				WARNING				24 HOUR FORECAST				48 HOUR FORECAST				72 HOUR FORECAST				
POSIT	WIND	POSIT	WIND	ERRHRS	WIND	DST	WIND	POSIT	WIND	DST	WIND	ERRHRS	WIND	DST	WIND	POSIT	WIND	DST	WIND	
1103082	9.5	80.8	15	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1103142	9.8	79.9	20	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1103202	10.1	78.8	20	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1104022	10.2	77.9	20	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1104082	10.4	76.9	20	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1104142	10.5	76.0	20	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1104202	10.6	75.0	20	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1105022	10.6	74.3	20	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1105082	10.6	73.5	20	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1105142	10.7	72.9	25	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1105202	10.9	72.3	30	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1105262	11.3	71.9	30	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1106022	11.9	71.3	35	11.0	72.0	35	68.	0.	11.6	69.6	45.	213.	-5.	12.4	67.2	55.	334.	-20.	0.0	
1106142	12.5	70.3	35	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1106202	13.0	69.3	40	12.1	70.3	40	79.	0.	13.4	67.4	50.	183.	-10.	14.5	64.8	50.	249.	-20.	0.0	
1107022	13.6	68.3	45	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1107082	14.2	67.1	50	13.5	67.3	50	43.	0.	15.3	64.2	40.	93.	-5.	16.0	62.1	70.	221.	-10.	0.0	
1107142	14.7	66.1	55	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1107202	15.4	65.0	60	15.2	65.5	60	31.	0.	16.2	62.8	70.	13.	-10.	20.9	60.9	70.	100.	-5.	0.0	
1108022	16.0	64.2	70	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1108082	16.7	63.5	75	16.9	62.8	75	42.	0.	19.0	57.7	70.	263.	-10.	0.0	0.0	0.	-0.	0.0	-0.	0.
1108142	17.4	62.9	75	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1108202	18.1	62.6	80	17.5	61.5	90	72.	10.	19.0	57.5	70.	313.	-5.	0.0	0.0	0.	-0.	0.0	-0.	0.
1109022	18.9	62.4	80	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1109082	19.7	62.3	80	19.2	62.0	90	34.	10.	21.8	62.4	80.	67.	-20.	23.9	65.6	75.	120.	35.	0.0	
1109142	20.3	62.4	75	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1109202	20.9	62.7	75	21.7	63.2	85	55.	10.	24.2	67.7	60.	175.	-10.	0.0	0.0	0.	-0.	0.0	-0.	0.
1110022	21.5	63.1	65	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1110082	21.9	63.6	60	22.3	64.1	75.	37.	15.	24.9	69.5	50.	162.	-10.	0.0	0.0	0.	-0.	0.0	-0.	0.
1110142	22.3	64.4	55	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1110202	22.5	65.1	50	23.5	66.8	65	78.	15.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.
1111022	22.7	66.3	45	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1111082	22.9	67.5	40	22.6	66.5	40	58.	0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.
1111142	23.0	68.4	35	0.0	0.0	0.	-0.	0.0	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	
1111202	23.0	69.3	20	23.1	70.2	25	5.	0.	0.0	0.	-0.	0.0	0.0	0.	0.0	0.0	0.	-0.	0.	

ALL FORECASTS  
 MMNG 24-HR 48-HR 72-HR  
 54. 165. 205. 0.  
 25. 101. 102. 0.  
 AVG NIGHT ANGLE ERROR  
 AVG INTENSITY MAGNITUDE ERROR  
 AVG INTENSITY BIAS  
 NUMBER OF FORECASTS

12 9 5 0

(NOVEMBER)

BEST TRACK	WARNING			24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST		
	POSIT	WINDS	FRHRS	POSIT	WIND	DST WIND	POSIT	WIND	DST WIND	POSIT	WIND	DST WIND
1119202	8.0 90.9 30	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0
1120022	7.9 90.3 35	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1120082	7.8 89.8 40	8.0 90.0 40	40. 43. 0.	8.2 88.5 40	80. 87. 10.	84.9 85.3 70.	120. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0
1120142	7.8 89.4 40	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1120202	7.5 88.9 40	8.5 88.2 40	40. 60. 0.	9.3 85.5 60	150. 50. 50.	4.8 81.5 75	232. -5.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0
1121022	7.5 88.4 45	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1121082	7.4 87.7 50	7.7 86.0 50	50. 25. 0.	7.6 86.7 60	51. -10.	7.2 79.9 50	160. -40.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0
1121142	7.2 87.1 50	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1121202	7.0 86.5 55	7.3 86.7 55	55. 21. 0.	7.0 84.5 65	30. -15.	6.7 78.7 50	158. -20.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0
1122022	7.0 85.9 60	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1122082	6.9 85.2 70	6.7 85.0 60	60. 17. -10.	6.2 81.8 70	70. -20.	5.5 77.1 65	251. 15.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0
1122142	6.8 84.7 75	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1122202	6.9 84.1 80	6.7 84.1 65	65. 12. -15.	6.4 81.4 70	112. 0.	6.6 76.6 65	253. 35.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0
1123022	7.0 83.5 85	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1123082	7.2 82.6 90	7.6 83.0 75	75. 27. -15.	6.3 80.4 65	179. 15.	6.0 76.6 60	344. 50.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0
1123142	7.5 81.8 90	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1123202	8.2 80.9 70	7.7 81.1 70	70. 38. 0.	7.9 78.3 60	192. 30.	8.6 75.5 60	283. 25.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0
1124022	8.0 80.2 55	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1124082	9.1 79.3 50	8.5 79.0 65	50. 15. 0.	B.R. 77.1 50	222. 30.	9.0 74.0 70	300. 35.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0
1124142	9.4 78.3 40	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1124202	10.2 77.2 30	9.4 77.8 35	35. 59. 5.	10.7 74.4 45	147. -10.	13.0 71.3 35	105. 10.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0
1125022	10.8 75.6 30	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1125082	11.3 74.3 30	11.1 74.5 40	40. 27. 10.	14.2 71.4 50	61. 15.	16.5 69.9 60	133. 40.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0
1125142	11.8 73.4 30	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1125202	12.3 72.5 35	11.7 72.3 45	45. 38. 10.	13.4 69.2 60	58. 35.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1126022	12.7 71.8 35	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1126082	13.2 71.2 35	13.0 70.7 50	50. 31. 20.	15.5 68.1 60	45. 40.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1126142	13.6 70.5 30	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1126202	14.1 69.9 25	14.1 70.2 25	25. 17. 30.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1127022	14.5 69.1 25	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1127082	14.8 68.4 20	14.6 68.6 35	35. 17. 15.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	
1127142	15.0 67.8 20	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	0. -0. 0.	0.0 0.0 0.0	

ALL FORECASTS  
 WMNG 24-HR 48-HR 72-HR  
 71. 104. 213. 0.  
 AVG FORECAST POS1 ERROR  
 AVG HIGH ANGLE ERROR  
 AVG INTENSITY MAGNITUDE ERROR  
 AVG INTENSITY BIAS  
 NUMBER OF FORECASTS

WMNG 24-HR 48-HR 72-HR

71. 104. 213. 0.

16 13 11 0